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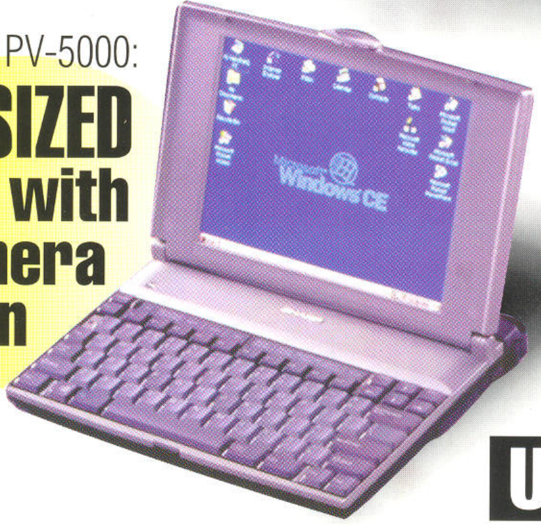
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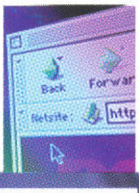

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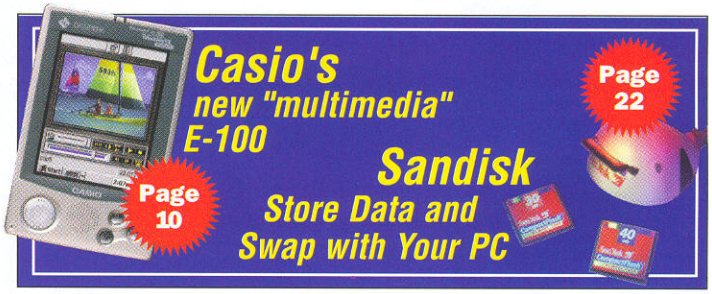

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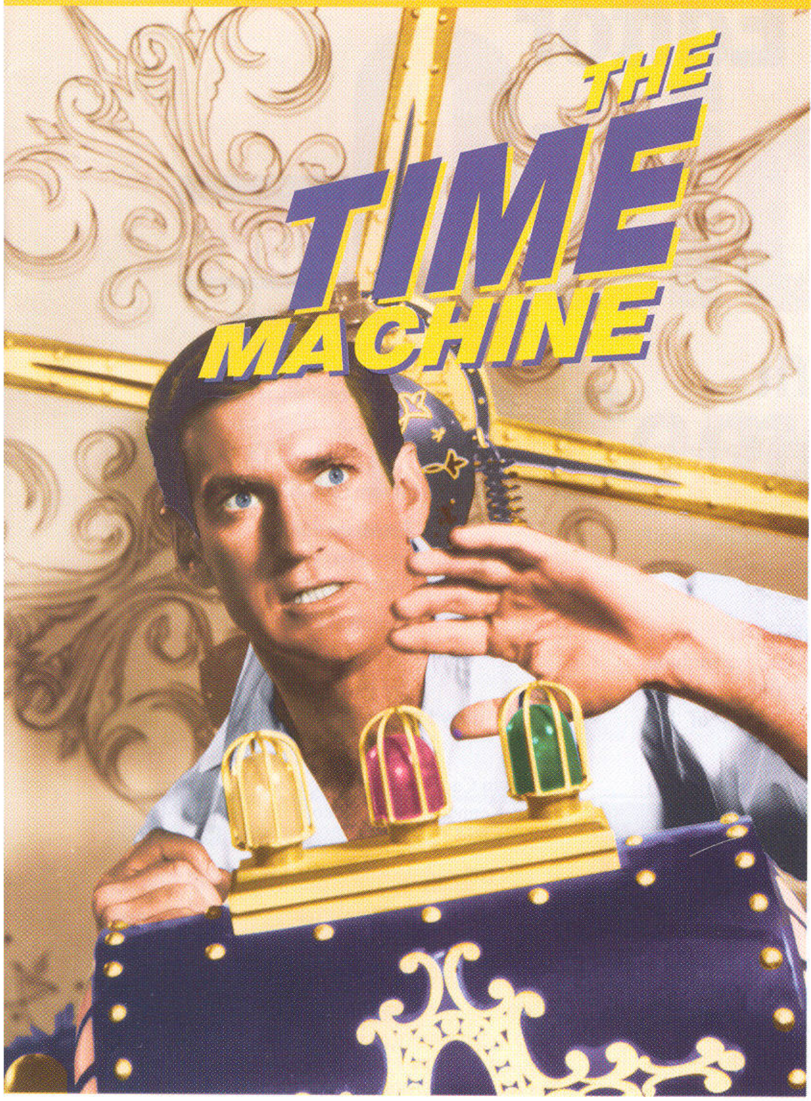
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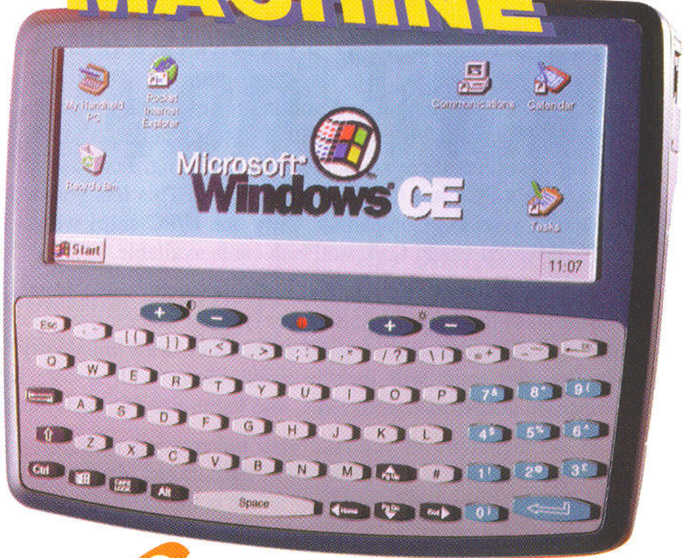
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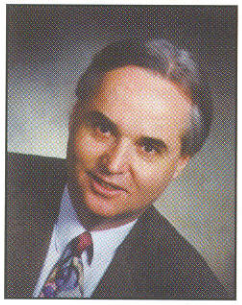

From The Editor

Rich Hall

Accessories Make the Outfit

Buy a PC Companion and you've got everything you need. Right? Almost every H/PC and Palm-size PC comes with a power adapter, connectivity cable, batteries, and carrying case. But there are some things missing. For example, every PC Companion comes with a PC Card or CompactFlash slot. This lets you add memory, modems and adapters to your PC Companion. Only one H/PC ships with a PC Card, but there are plenty of these PC and CompactFlash cards available.

Because there were so many excellent accessories, our "Top Ten" list is more a description of the top ten categories or types of accessories. After the top ten, we include a more comprehensive listing of accessories from third-party vendors. Our Web site (www.hpcmag.com) will include these, along with a comprehensive listing of PC Companion accessories from H/PC and Palm-size PC manufacturers.

PC Companions let you take your information with you wherever you go. If you have a lot of data, you may need one of the data storage solutions we review in this issue. Perhaps the most portable and easy to use is the PC or CompactFlash data storage card. Take a look the review of SanDisk's data storage cards. Pretec Electronics also has an excellent line of CompactFlash data storage cards. We look at two other data storage devices in this issue: Iomega's Clik! Drive and Accurite's Travel Floppy disk drive. Both are small, portable external devices that connect to an H/PC using the PC Card slot.

The PC Card slot in your H/PC can be used for more than adding data storage. Chris De Herrera shows how Proxim's Wireless LAN PC Cards let an H/PC user link to a desktop PC wirelessly. And John Kennedy knows exactly where he is while touring Europe, with the help of the Marco Polo Global Positioning System card and his H/PC.

There's more to a PC Companion than the card slot and storing data. We take a look at a nifty portable scanner from Hewlett-Packard. CapShare lets you quickly capture text and low-resolution graphics and beam them to a PC Companion or other device with an IrDA port. And Ed Zabrek reports on Concept Kitchen's PDA Survival Kit, a kit that cleans and protects your touchscreen.

Wrapping up our look at accessories, Tom Gibson's "PC Companion Online" article tells you where you can shop for accessories online, and Andy Seybold reports on some of the mobile communications peripherals you can expect to see in the coming year.

Accessories only make sense if you have a PC Companion. If you're still looking for an H/PC or Palm-size PC, or are looking to upgrade, check out our reviews of Casio's new E-100 color-screen Palm-size PC, the Sharp's Mobilon Pro H/PC Pro, and the new Itronix T5200 ruggedized H/PC.

As the old saying goes, "accessories make the outfit." The idea is to take a basic PC Companion and turn it into a device for many different occasions. Last issue showed us how software helps. This issue focuses on the contribution hardware accessories make. Taken together, they open up a wide variety of possibilities for PC Companion users.

Rich Hall

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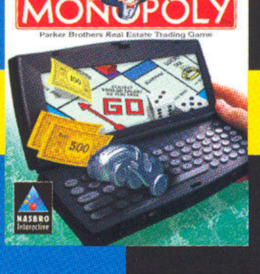
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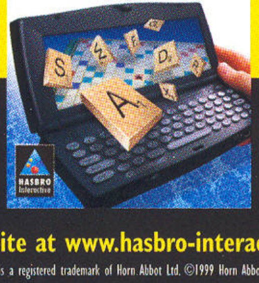
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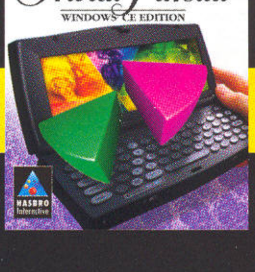
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newsBYTES

Hewlett-Packard announces Jornada 680

HP released its latest Windows CE handheld, a pocketable, color-screen H/PC called the Jornada 680 Handheld PC. The 680 is about the size of the earlier 360LX, but comes with a 256-color ½ VGA touchscreen and a 76% full-size keyboard. The keys are not the usual calculator buttons found on the smaller HP Palmtop PCs, but look and feel like desktop PC keys.

The Jornada 680 sports a 133 MHz Hitachi CPU, 16 MB of RAM (upgradeable to 32MB), 16MB of upgradeable ROM, a 640x240 color touchscreen, a built-in 56kbps modem, serial port, fast IrDA port, PC Card Type II slot and CompactFlash Type I slot. It has a built-in speaker and microphone and is powered by a rechargeable Lithium-Ion battery that gives the user up to 8 hours of use between charges.

The Jornada 680 is in the H/PC Pro class and comes with the Windows CE 2.1 operating system, and H/PC Pro Pocket applications. To the basic Windows CE software, HP has added HP Jornada viewer, dialup, settings, backup, hot keys, quick pad, and macros. The Jornada 680 also comes with bSQUARE's bFIND and bFAX Pro built in. The 680 also comes with a number of excellent programs on CD ROM.

The Jornada 680 may be the best compromise we've seen, between a small, color-screen H/PC you can carry in your pocket and a touch-typeable keyboard. We'll review the Jornada 680 in the next issue. It will retail for around $899. For more information, contact your local HP dealer or visit HP's Jornada Web site at www.hp.com/ jornada/index.html.

Trogon Paume color-screen Palm-size PC

Trogon Computer Corporation has announced that it will market a new 256-color-screen Palm-size PC powered by a Lithium-Ion rechargeable battery. The Paume comes with a CompactFlash backup and restore utility and ART handwriting recognition software. For further information, visit Trogon's Web site at http://palmpower.trogoncomputer.com

Phillips Nino 500 color-screen Palm-size PC

Shortly before we went to press, Philips Electronics announced the introduction of its new Nino 500, based on the second generation Microsoft Windows CE operating system for the Palm-size PC. According to Philips, the Nino 500 has a bright, transmissive, backlit color touchscreen display that supports 256 colors (320 x 240 pixels). It comes with a 32-bit high performance MIPS-based RISC processor, 16MB of memory, and additional software including downloadable audio support.

The Nino 500 will retail for about $499. For more information, contact your Philips Nino dealer or visit the Nino Web site at http://nino.philips.com/.

Audible Palm-size PC audio player

Audible Inc., a company specializing in delivery of spoken audio titles via the Internet, has released a free audio player for Palm-size PCs. The software installs on any Palm-size PC and lets the user play any Audible audio file downloaded to the PC Companion. The free player program can be downloaded at Audible's Web site: www.audible.com.

Audible provides over 17,000 hours of audio newspapers, audio magazines, audio books, on-demand radio (including Marketplace, Nightly Business Report, Fresh Air, Car Talk), speeches, lectures, and language learning, and more. Listeners download audio from Audible.com and store titles on their PCs, where it can then be loaded onto the Audible MobilePlayer, or any one of many Audible-Ready devices, including the Palm-size PC. Audible.com features daily selected articles from The Wall Street Journal on Audible and The New York Times Audio Digest on Audible, along with a collection of audio books from best-selling authors, including Stephen King, John Grisham, Robert Ludlum, and more. Microsoft recently invested $11 million in Audible, Inc.

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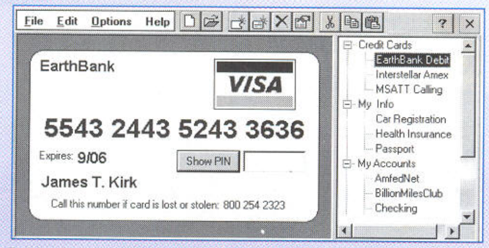

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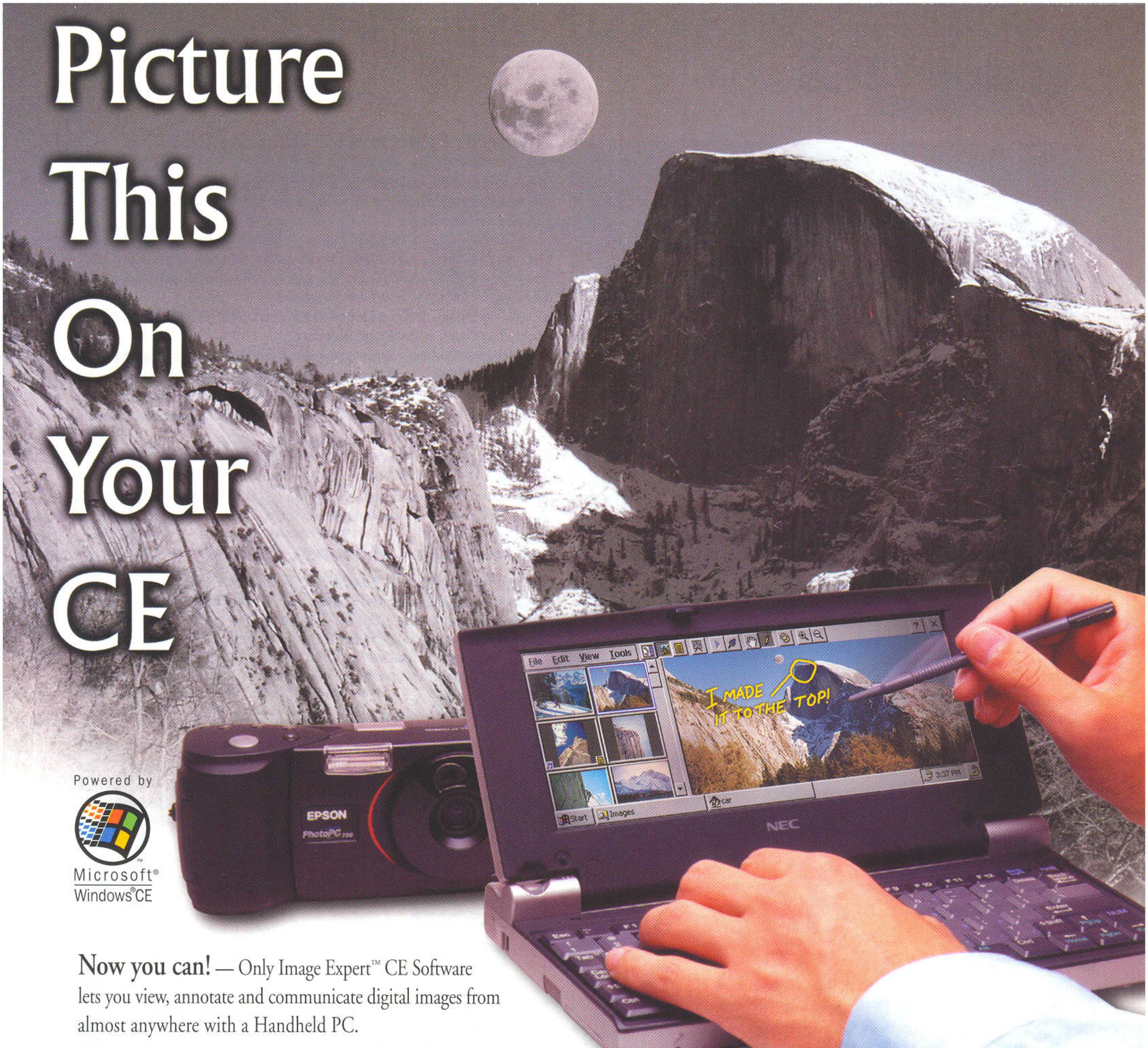

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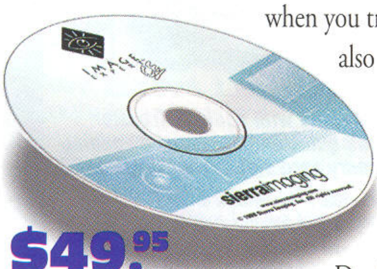

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Microsoft Powertoys for Palm-size PC

Microsoft has finally released the Palm-size PC version of its popular Windows CE utility package. The tools are not a part of Windows CE and are not supported by Microsoft technical support. The Palm-size PC versions includes the following:

- Hyperlinked Active Desktop – creates a hyperlink for each appointment, task, and e-mail message on the active desktop. Tapping on this hyperlink opens the item. Makes it easy to see what to bring to your next meeting, to read emails, and to check off completed tasks.
- Business Cards – lets you pick a business card from your Contacts application and exchange it via the infrared port.
- DTMF Dialing – lets you dial a phone number stored in any Contact by creating the DTMF dial tones from the Palm-size PC's speaker.
- Mute – turns off all sounds with a tap of a taskbar button.
- Paint – lets you create pictures and edit images with a pocket-sized version of the Microsoft Windows 95 Paint program.
- Sound Schemes – three new sound schemes for your Palm-size PC.
- Wallpaper – eight new Wallpapers for your Palm-size PC.

Powertoys is a freeware program and can be downloaded from Microsoft's Windows CE Web site: www.microsoft.com/win dowsce/products/download/

Developer's Conference, June 6-9 in Denver

The annual Windows CE Developer's Conference will be held at the Colorado Convention Center in Denver, Colorado this year. The conference includes developer's sessions, and a products/services expo. The topics of the sessions will include: Universal Plug and Play, Wireless Communications, Solution Spotlights and Windows CE Toolkits. For more information on this event, please visit: http://events.microsoft.com/

MagicText: Makes PalmPilot like a Palm-size PC

ZDNet AnchorDesk recently reported on a new PalmPilot program called MagicText. The program is designed to make the PalmPilot behave more like a Palm-size PC (or any other Windows PC) by letting the user tap, drag and drop text. We're sure Microsoft took a close look at the PalmPilot when they designed the Palm-size PC. It looks like Pilot developers are returning the favor.

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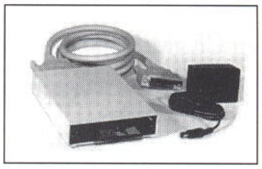

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Itronix T5200

A Rough and Tough H/PC Pro for Specialized Applications

BY RICH HALL

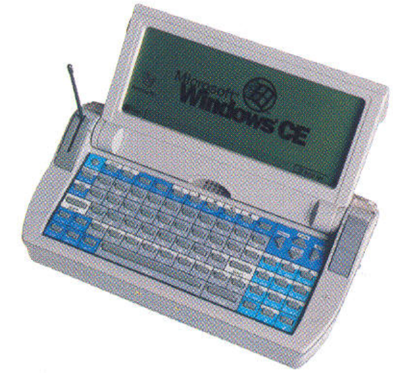
Most PC Companions are reasonably sturdy, and survive daily bumps and knocks without any problems. I'm not suggesting that anyone tempt fate, I just don't think you need to worry much about damaging them under normal conditions.

But what about abnormal conditions? Mobile computers are being used by many service industries to track activities and stay in touch with home offices. These devices get bounced around more, and are sometimes subjected to extreme temperatures, humidity, dust, and more. I don't think many PC Companions would stand up to this kind of abuse. But if any would, the Itronix T5200 would be among them.

The sturdiest H/PC I've seen

I jumped at the chance to look at a preproduction version of the T5200 from Itronix – the sturdiest H/PC I've ever seen. It's sitting on my desk right now, about the size of one of the larger H/PCs, but twice as thick and heavy. It has a removable carrying handle attached to the top of the clamshell, with a rubberized grip – you're not going to drop this thing.

The T5200 is made of hard "polycarbonate" plastic that feels like it could stop a bullet. The display's reinforced hinges are so sturdy that it's actually a little hard to open its $^1/_2$ VGA monochrome touchscreen. The T5200 sports a 74 MHz processor and comes with 16 MB of RAM and 16 MB of ROM. It has a built-in 33.6 modem, an IrDA port, serial port, and a Type III PC Card slot (which lets you use one Type III rotating disk PC Card or a Type II PC Card. The specification sheet says it comes with CompactFlash expansion memory, but I couldn't find the slot on the pre-production unit. The T5200 is powered by a high-capacity 3-cell Lithium-Ion rechargeable battery pack.



Fulfilling specialized needs

The unit I looked at was pre-production and came with the Windows CE 2.0 operating system. The production units will use Windows CE 2.1. The unit had very few of the traditional Pocket applications built into other H/PCs. Most of the software I did see on the T5200 was related to communications. The unit came with Inbox, Internet Explorer, PC Link, Remote Networking, and a terminal emulation program. It also came Speaker Phone, an application that lets you use the T5200 as a mobile phone.

Itronix works with clients to set up the T5200 to fit specialized needs, providing rugged, wireless computing systems, specialized software applications, and support for the system. They will develop custom software for their clients, partner with applications solutions providers, or help clients develop their own applications. Ameritec and Bell Atlantic are field testing the T5200, using it for dispatch and work management.

If your organization needs a rugged, specialized mobile computing solution, with built-in wireless communications capabilities, Itronix T5200 is worth looking at. Although Itronix does most of its work with larger enterprises, it will sell individual units for $1995, and customize it to your needs.

Itronix promotes the T5200 as a "rugged computing and communications platform designed to perform in the most demanding field applications." By the look and feel of it, they're not exaggerating.

For more information contact Itronix at 800-441-1309 or 509-624-6600, or visit their Web site at www.itronix.com. ■

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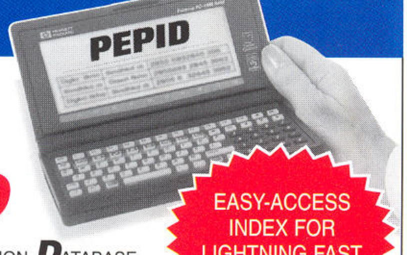

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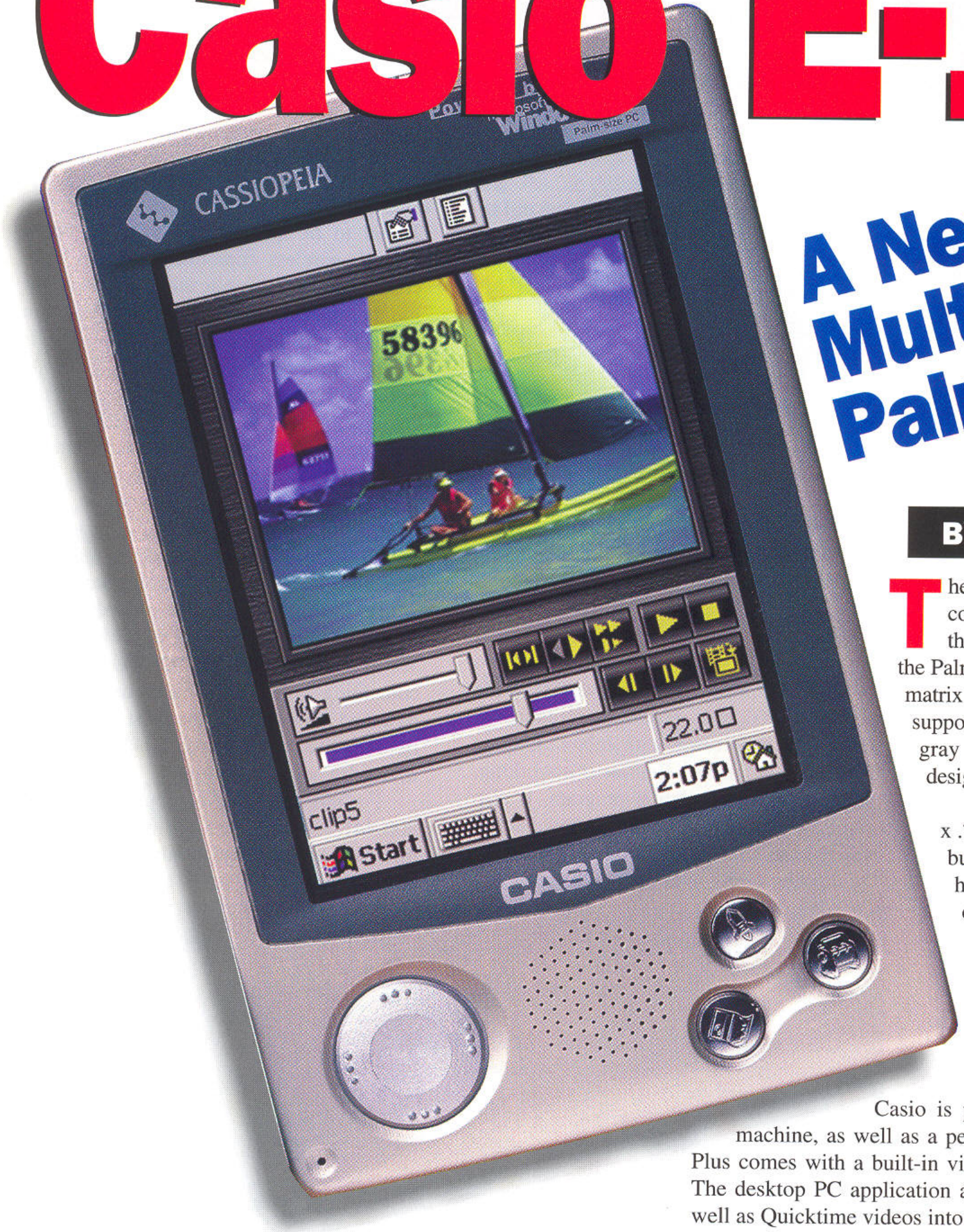
Casio E-100

A New Multimedia Palm-size PC!



BY CHRIS DE HERRERA

The Casio E-100 is one of the new breed of color-screen Palm-size PCs, but it's more than that. Casio has taken the definition of the Palm-size PC to new heights with their active matrix color LCD, stereo sound and multimedia support in the E-100. It has a sexy silver and gray case that improves on Casio's prior designs.

The E-100 is slightly larger (3.93 x 5.15 x .78 inches) than the earlier E-10 and E-11, but it's still easy to slip in your pocket and hold in one hand. It's slightly heavier (8.9 ounces) than previous versions, but it's one of the lightest of the newer color-screen Palm-size PCs. It has side grips that allow the user to hold the unit better than previous designs.

A Multimedia Palm-size PC

Casio is positioning the E-100 as a multimedia machine, as well as a personal information manager. The E-100 Plus comes with a built-in video player and a desktop PC converter. The desktop PC application allows a user to convert MPEG, AVI as well as Quicktime videos into movies that can be played on the E-100. Videos with or without sound play well on the device. The sound is clear and the video smooth and clear. I have a video of the unit playing a video on my website (www.cewindows.net).

One of the reasons the E-100 is being called a multimedia machine is because it sports a fast and clear 320x240 screen that displays 65,536 colors. The 4" diagonal active matrix LCD has bright and uniform backlighting. Only the video player and some other 3rd party applications take advantage of the additional colors; the standard Windows CE applications only support 256 colors.

The E-100 is the first of the Palm-size PCs with stereo headphone support. The E-100 ships with a Casio MP3 player software. This provides high-quality stereo output through an earphone jack on the left side of the E-100. The Casio MP3 player has the ability to turn the dis-

CASIO ***takes the Palm-size PC to*** **NEW HEIGHTS*!***

Fast, clear 320x240 screen! **65,536 COLORS*!***

CLEAR ***sound!*** **SMOOTH** ***video!***

High-quality **STEREO OUTPUT*!***

FASTEST ***Palm-size PC (*****131mhz*)!***

HOT GAME ***machine!***

play off while playing, to conserve battery power. The user is able to hear both channels on stereo MP3 recordings via the headphone jack, and the quality of the sound is excellent! (Xaudio provides a freeware MP3 player for other PC Companions. It supports stereo as well, but it does not allow the user to turn the backlight off like the Casio version does. For more on this, visit www.xaudio.com.) The E-100 also comes with a decent built-in speaker, on the bottom front of the unit for better sound.

Finger Real Estate

The E-100's navigation and action buttons seem best suited for a right-handed user holding the unit in his or her left hand. Located on the left side of the unit (i.e., left with the unit facing you) are the Power, Exit, microphone record button, and an integrated "action jog wheel." This latter device lets you move up and down in menus and lists, and then select items and options. Located on the front of the unit, just below the display, are the quick launch buttons for Calendar, Contacts and Tasks. These can be reprogrammed to launch any application. Also located on the front of the E-100, next to the quick-launch buttons, is a large button I call a "finger joystick." It's the traditional up, down, right, and left arrow keys built into one button. You use it, along with the action jog wheel to navigate on the E-100. The finger joystick will be very useful for playing games. As I mentioned, the E-100 seems better suited to a right-handed user. It's not that a left-handed person couldn't use an E-100, but the jog wheel is easier to use with the thumb of the left hand than the fingers of the right.

Connectivity

The E-100 has a CompactFlash CF+ type II slot for additional storage and peripherals like Ethernet, modem and pagers. It also has a docking station to connect to your serial port as well as an IrDA port. The E-100 ships with Windows CE Services 2.2 for desktop connectivity and supports mobile channels in 256 colors.

Under the Hood

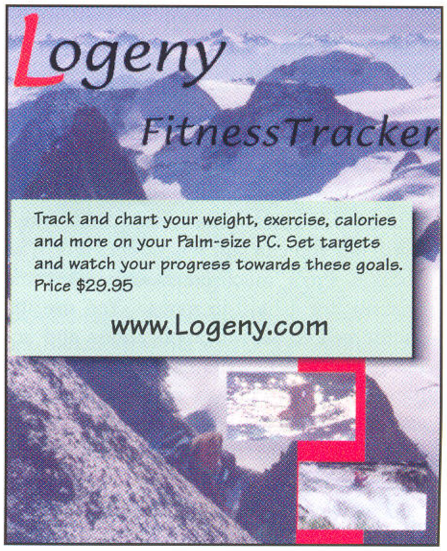
The E-100 raises the bar for the fastest Palm-size PC to 131mhz! It also has 16 MB of RAM in the E-100 and 32 in the E-100 Plus. These units are using the NEC Vr4121 MIPS CPU, which has 24k cache on the CPU for higher performance. The unit is powered by a Lithium-Ion battery which can be charged in the cradle or via the AC adapter directly plugged into the unit. The battery life is expected to be 6 to 8 hours.

Applications

The E-100 ships with the standard Windows CE applications, including Pocket Outlook, Inbox, Channels, and Notetaker. It also comes with a backup and restore utility to allow users to backup all their memory to a CompactFlash card while on the road. You can also restore data to the E-100 without having to connect to a desktop PC. The E-100 Plus adds the ability to play MP3 audio files in stereo and the video player. Users who purchase the E-100 can purchase the MP3 player and the video player separately. The E-100 also includes Pocket Database, Schedule Viewer, Casio Menu and Financial Calculator on the bonus CD ROM. Also, available for free from Casio's Website is PalmPilot^{tm} PIM Conversion, Avantgo Client 2.0 (off-line web browsing), and Audible.

The E-100 will be available at the end of April. The list price for the E-100 will be $499 and the E-100 Plus $599. Casio will capture the attention of customers with the multimedia capabilities of the E-100, and the addition of the joystick and the active matrix LCD will make this unit a hot game machine. ■

Chris De Herrera is a special correspondent and contributing author for *Handheld PC Magazine*. He maintains one of the best Windows CE Web sites (www.cewindows.net). Chris is a Microsoft Comm Link columnist covering communications and Windows CE issues on Microsoft's Windows CE Web site. He is also a Microsoft Most Valuable Professional for Windows CE and writes articles on Windows CE for his own Web site and for other mobile computing publications. Chris regularly participates in chats on Microsoft Network and various newsgroups (including Microsoft.public.windowsce). You can e-mail chris at chris@cewindows.net.



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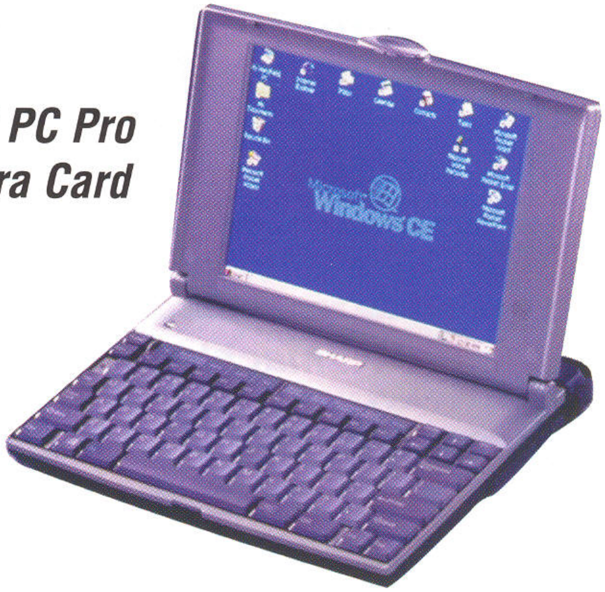
Sharp Mobilon Pro

Handheld PC Pro
with optional Digital Camera Card



BY CHRIS DE HERRERA

Sharp's Mobilon Pro PV-5000 is one of the new Handheld PC Pro "mini-notebook" computers with a near-full-size keyboard and a large, 8.2" diagonal, 640x480 color touchscreen. Unlike Sharp's more unique TriPad H/PC Pro, the Mobilon Pro has a traditional clamshell case. It's smaller and lighter than the TriPad, but either H/PC Pro easily fits inside a briefcase or large shoulder bag. The most unique thing about the Mobilon Pro is the optional Digital Camera Card that works with it.

A look at the hardware

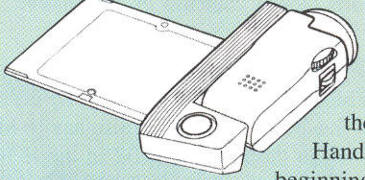
The Mobilon Pro's full-VGA touchscreen displays 4,096 colors. The backlighting is bright and uniform – brighter than Sharp's TriPad, but not as bright as the HP Jornada 820 at its brightest setting. The 4,096 color display is overkill for the standard Windows CE applications, which are displayed in 256 colors. But it can come in handy with third party applications. For example, Sharp's optional Digital Camera Card ships with an Image Editor and Mpeg Player that take advantage of the greater number of colors.

The Mobilon Pro's keyboard has 69 regular keys without an embedded keypad for data entry. In addition, it has 10 "One-Touch" application launch keys. It's billed as a "near-full-sized" keyboard, which means that it's more crowded than a standard notebook keyboard, but you can still touch type on it. The Mobilon Pro's touchscreen eliminates the necessity for a built-in mouse. You use the touchscreen to launch applications and access menu options. You can use the built-in Inkwriter application to make sketches or take freehand notes, and there are a number of third-party programs that add handwriting recognition to the Mobilon Pro.

The Mobilon Pro has a single PC Card slot for additional storage and peripherals like Ethernet, modem and pagers. It can accept standard Type II PC Cards, or a CompactFlash card with the help of an adapter. The Mobilon Pro supports data synchronization with a desktop PC using either its serial port or IrDA port. It also has a built-in 33.6k software modem with a standard RJ-11 plug, which can be used to send or receive faxes and e-mail, as well as browse the Internet. A LED indicator located above the power button tells you when you are using the serial or IrDA port.

The Mobilon Pro ships with 16 MB of RAM, partitioned to run programs and store data. You can upgrade this to 32 MB. I recommend setting the storage RAM to 12 MB and execution to 4 MB to maximize your RAM usage. Its internal ROM is also upgradeable. The Mobilon Pro has a 129 MHz Toshiba TX 3922 Mips processor and is powered by a rechargeable Lithium-Ion battery pack that gives you about 8 hours of use between charges. The unit's speaker is located on the back of the unit, and is muffled

Optional Digital Camera Card



The Sharp Digital Camera Card; a small PC card device that slips into the Mobilon Pro's card slot and turns the unit into a portable digital camera. We did not test the Digital Camera Card with the Mobilon Pro, but we did with an earlier Sharp Handheld PC. (Please see review of the Mobilon 4500, beginning on page 6 of the May/June 1998 issue. That review is also available on our Web site: www.hpcmag.com. Go to the Reviews section and look for "Sharp HP and Camera.")

The Digital Camera Card takes its power from the Mobilon Pro, and stores its JPG formatted images on the H/PC's internal memory. When we tested the camera card last year, with the Mobilon 4500 H/PC, we were able to take 234 photos before getting a low battery message. We never came close to using up the internal memory.

Again, we didn't test the Digital Camera Card with the Mobilon Pro, but with moderate use, we don't imagine you'll run out of storage memory or drain your batteries quickly. Note that the Digital Camera Card works only with the Mobilon Pro and the Mobilon 4500 and 4600. It does not work with the Sharp TriPad, or any other H/PC.

The Digital Camera Card retails for $399 and is available online at http://sharp.mobilon.com/. For more information, visit Sharp's Web site at www.sharp-usa.com/ or contact your local Sharp dealer.

somewhat when the unit is sitting on your lap. You might want to turn the volume up to make sure you hear appointment alarms.

Mobilon Pro software applications

The Mobilon Pro ships with the standard set of H/PC Pro applications, including Pocket Outlook (Calendar, Contacts, Tasks, Inbox), Pocket Office (Word, Excel PowerPoint), Solitaire, Calculator, Inkwriter, World Clock and Pocket Internet Explorer. To this software, Sharp has added the following:

- Image Editor — for displaying and editing pictures taken with the optional Digital Camera Card.
- Mpeg Player — for playing videos captured with the Digital Camera Card.
- File Viewer — for taking a quick look at many of the data files on your Mobilon Pro. File Viewer supports the major file formats for Word Processing, Spreadsheets, Graphics and Databases including dBase II, V, VI and Access 2.0.

Included with the Mobilon Pro, on CD , is bSQUARE bFAX Pro and bUSEFUL Backup utility, and Citrix (ICA Client software).

The Mobilon Pro's strengths are its optional Digital Camera Card, its 4.096 color display, and its touch typeable keyboard. It does not come with a built-in microphone so you can't use it to record voice memos. It does not come with a VGA port option, so you can't use it for PowerPoint presentations without a PC Card VGA card. If you need an H/PC and digital camera in one package, the Mobilon Pro and the Mobilon 4500 and 4600 are your only options. If you don't need the integrated camera, then consider the Sharp TriPad or other H/PCs. The Sharp Mobilon Pro lists for $899 and is available through Sharp dealers, or through the Sharp online store at http://sharp.mobilon.com/. For more information, visit Sharp's Web site at www.sharp-usa.com/ or contact your local Sharp dealer. ■

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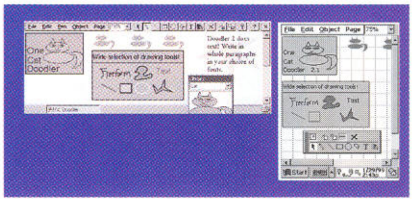

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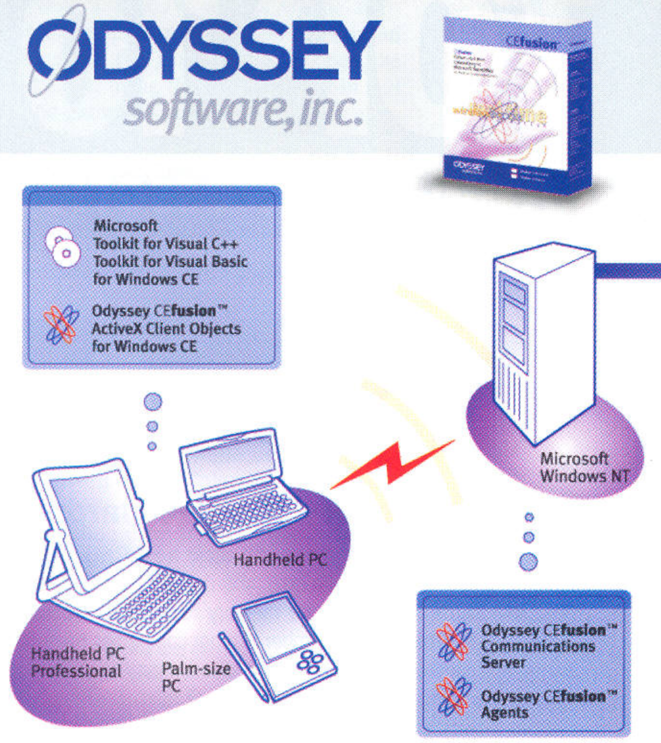

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How POWER USERS get the most Accessories

by Rich Hall

Handheld PC Magazine
TOP 10
Accessories
for Windows® CE

PC Companions are designed to be self sufficient, out of the box. Buy a PC Companion and you get the basic software and hardware you need to organize your life, and interface with your desktop PC. But human nature always seeks to stretch boundaries and many PC Companion users are not satisfied with limitations placed on them by designers or manufacturers.

Users want a PC Companion to be what they want it to be, and third-party developers are all too happy to make that happen. Last issue we looked at a wide variety of software designed to make PC Companions more powerful and productive. In this issue, we look at hardware accessories that do the same.

The first thing we did was try to determine the top accessories, but this was hopeless from the beginning. For example, a number of companies market CompactFlash storage cards, and one works pretty much the same as another. Instead, most of the Top Ten listed is actually a description of the top ten categories of accessories.

Next, we include a comprehensive listing of accessories from third-party vendors. This is followed by reviews of individual accessories.

Many individuals contributed their opinions on top accessories, along with reviews of products. Most of these opinions are from people I consider "power users," the kind of people who know how to get the most out of a PC Companion. You may not consider yourself a power user, and may find some of these accessories way beyond what you need. Still, there are plenty of useful hardware accessories available for even the most basic user.

We pick our TOP 10 Hardware Accessories

1

30 MB
SanDisk CompactFlash
MEMORY CARD
40 MB
SanDisk CompactFlash
MEMORY CARD

Flash Memory Storage Cards

Every PC Companion comes with either a PC Card or CF Card slot, and some come with both. You use PC Cards or Compact Flash cards to add storage memory to your PC Companion. SanDisk, Pretec, and a number of other companies manufacturer and market these cards. In addition, many PC Companion manufacturers sell them. Take a look at my review of the SanDisk cards on page 22. We also have reviews of alternatives to Flash storage, including a look at Iomega's Clik! Drive, on page 24, and the Accurite Travel Floppy Drive, on page 25. See "PC & C/F Memory Cards" on page 19 for a more complete listing of Flash memory storage cards.

out of their PC Companions!

2

Carrying Cases

These protect your PC Companion from scratches and dings. Most of the PC Companions come with an inexpensive slipcase. Many more elaborate models are available as options from third-party vendors. I have mixed feelings about cases for Palm-size PCs. I always carry mine in the breast pocket of my suit coat. I don't need another layer of protection that gets in the way when I want to use the Palm-size PC. If you carry your PC Companion around in a briefcase, purse, or pocket with pens and a case will keep the scratches away. See "Cases" in the following Third-Party Listing for a more complete description of PC Companion carrying cases.

3

Modems PC and CF Cards

Although many of the H/PCs, and all of the newer H/PC Pros come with built-in modems, few of the Palm-size PCs do. There are a number of PC Card and CompactFlash card modems available to rectify that omission. A modem is a must, if you want to check your e-mail or browse the Web when you're away from the office or on the road. See "PC Fax/Modem Cards" (next article) for a more complete listing of PC and CF modem cards.

4

Wireless Modems

To use most modems, you need to find a telephone line. Not so with devices like the Ardis Motorola PM100D wireless modem. This device slips into the PC Card slot of your H/PC and lets you connect to the Ardis wireless network that covers 80% of the U.S. Other wireless devices include the Megahertz AllPoints Wireless PC Card and the Novatel Sage CDPD wireless modem. See "Wireless Communications" (next article) for a more complete listing of wireless modems.

5

Ethernet LAN Adapter Cards

Three or four of the contributing authors mention this category. These cards let you connect a PC Companion to a LAN to send or receive e-mail, browse the net, or synchronize data. These PC or Compact Card LAN adapters add a 10BaseT or 10BaseT/10Base2 connector to your PC Companion. Craig Peacock takes a look at Socket's LPE Ethernet Adapter Card (see page 21). See "I/O Cards" (next article) for a more complete listing of LAN adapter cards.

6

Wireless LAN Adapter Cards

Chris De Herrera looks at a nifty wireless LAN adapter from Proxim (see page 26). This PC Card adapter lets you wirelessly network your H/PC to a LAN. Proxim is the only company we know of marketing wireless LAN adapters for H/PCs. These devices are convenient for someone who needs this kind of access, but may not be for everyone.

7

Serial-to-parallel adapters

A few of the newer H/PC Pros come with parallel ports, but most PC Companions only have a serial port. A serial-to-parallel adapter lets you connect these PC Companions to a parallel-port printer (or any parallel-port device). It's a handy device, especially for mobile users needing to print out documents from someone else's printer. Craig Peacock talks about his experiences with a Greenwich serial-to-parallel adapter on page 21. See "Serial Adapter/Cables" (next article) for a more complete listing of these adapters.

8

PC Card and Compact Card Readers

These devices add a PC Card or Compact Card slot to your desktop PC (or notebook PC). This lets you exchange data between your PC Companion and desktop PC quickly and easily, using a PC or CompactFlash Card. Take a look at my review of the SanDisk ImageMate, on page 22. See "PC/CF Card Readers" (next article) for a more complete listing of these devices.

9

Replacement Styluses

A stylus is that tiny pencil-like thing you use to tap or "write" on the touchscreen. Every PC Companion comes with one, but they're tiny and easy to lose. Each manufacturer sells replacement stylus' (usually in a 3-pack). Buy replacements from the manufacturer of your particular PC Companion, or it might not fit in the stylus slot.

Another way to go is to buy a pen/stylus combo. These devices have a stylus tip for your PC Companion, and a pen tip for writing on old-fashion paper. There are some very nice-looking pen/stylus combinations. I still carry around a year old Pilot with a blue-enamel tube and brass clip and trimmings – I love it! See "Accessories, Misc." (next article) for a more complete listing of these pens.

10

Miscellaneous "Survival" Accessories

This catch-all category includes clip-on lights, auto power adapters, rechargeable batteries, and more. Ed Zabrek reviews Concept Kitchen's WriteRight Screen Enhancements package, on page 32. See "Accessories, Misc." (next article) for a more complete listing.

PC Companion

Third-Party Accessories

GENERAL LISTING

Accessories, Misc.

15 Minute SuperCharger – boosts H/PC batteries in 15 minutes; $79; Microsystems; www.jjustin.com

Clipstand – a telescopic copy lets you temporarily affix H/PC to any surrounding surface; $9.25; Autel Corporation; www.autelcorp.com

DigitalWriter – five different styluses; prices range $12.50 to $250; Cross Pen Computing Group; www.crosspcg.com

Duracell Ultra Batteries – high capacity alkaline batteries in AA and AAA sizes for H/PCs and Ps/PCs; AA 4-pack $5.00; Duracell; www.duracell.com

GC/Lind – 12V Auto Power with Cigarette Adapter for Hewlett-Packard H/PCs; $49.95; A One-Stop Palmtop Shop; www.mrpalmtop.com

Microfiber TechCloth – a high absorbency cloth to clean computer screens; $10; OptiTech International; 800-639-9722 / 412-471-7870

Mini-Palmtop Computer Lights – battery-operated light illuminates display, keyboard, and work area of any HP/C. $19.95 to $29.95; www.std.com/asf1

Palmtop Clip-on Light – battery-powered 7-inch gooseneck lamp clips onto H/PC's display and illuminates screen and keyboard. $11.95; www.autelcorp.com

PDA Screen Clean – screen cleaning kit for H/PCs and Palm-size PCs; $19; www.conceptkitchen.com

PDA Survival Kit – essential accessories for PC Companions, includes screen overlays, Karma Cloth for buffing out minor screen scratches, Brain Wash two-step screen cleaner, and sterling silver Fingertip Stylus; $69.95; www.conceptkitchen.com

Pentopia Styluses – dual-function stylus and ballpoint pen devices from the Pilot Pen company; prices vary; SureSourceSM; Phone: 888-777-8843; www.pilotpen.com

Rechargeable Batteries – long-lasting batteries for some HPCs; price varies; www.portable-energy.com

Rechargeable Batteries – rechargeable NiMH, NiCad, and Lithium-Ion batteries, AC adapters/chargers, car adapters; price varies; 800-228-8374; www.1800batteries.com

WriteRight Screen Enhancements – thin, clear, textured overlays protect PC Companion displays against scratches; $27.95 (12-pack, one year's supply); www.conceptkitchen.com

Bar Code

H/PC Bar Code Scanners – bar code scanner kits for Windows CE-based H/PCs or Windows 95-based notebooks; $295 and up; www.momtec.com

Sales Assistant Barcode Entry System – supports mobile order writing on the HP 320LX Handheld PC (or HP 200LX in DOS); price varies; Corvallis System Sales Corp.; 800-733-5017.

Socket Bar Code Wand Cards – integrated package including Socket's Collection I/O Cards and the Welch Allyn's 6180 bar code scanner wand. PC Card version works with Windows CE H/PCs and Windows 9x/NT notebooks. CompactFlash CF+ versions work with Palm-size PCs and H/PCs with CF slots; $399 and up; Socket Communications; 800-552-3300; www.socketcom.com

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Socket Bar Code Laser Scanner Cards – integrated package including Socket's Collection I/O PC Card and Symbol Technology's LS2104 or LS4004 handheld laser scanners. Works with Windows CE H/PCs and Windows 9x/NT notebooks; $999 and up; Socket Communications, 800-552-3300; www.socketcom.com

Carrying Cases

Baker Products H/PC & Palm-size PC Cases – leather and neoprene cases featuring Velcro attachment, removable handstrap, and credit card or PC card slots; $19.95 to $29.95; Baker Products; 800-444-0611; www.bakerproducts.com

Chameleon Cases – a range of quality leather cases for Handheld PCs. All cases have spaces for credit cards, memory cards, check book, batteries and pen; $64.95 to $84.95; Chameleon Distribution Ltd; +44 171 630 5736 (UK); E-mail: chamele66@aol.com

E & B Leather Cases – a variety of leather cases custom designed for Handheld PCs and other small computers; prices vary; E & B Company; 800-896-2273; www.ebcases.com

HPC-2 Carrying Case – features a slim, bill-fold design and secure hook-and-loop tab closure for easy access. Fits H/PCs and PDA units that measure up to 7.25x 3.75x1.25 inches; $24.99; Case Logic; 800-447-4848; www.caselogic.com

ISIS Leather Case – a slip case that fits most Handheld PCs (leather with velcro flap); $30; Isis; 800-624-8882 or 303-665-2300.

Nutshell H/PC and Palm-size PC Carrying Cases – slipcases made of sturdy sheet polypropylene front and back, bonded to Genuine Leather. Belt clip makes Palm-size PC slipcases easy to remove; Ps/PC: $39.95, H/PC: $79.95; Nutshell; Phone: ++(64) 9 818 5842 (NZ); http://tuff-as-nuts.com

PalmTree Leather Carrying Cases – a selection of leather carrying cases for H/PCs; $19.95 to $59.95; PalmTree Products; 781-826-4347; www.palmcase.com

Pygmy H/PC Cases – a variety of cases for Handheld PCs; $9.95 to $39.95; Pygmy; 888-807-4472; www.pygmy.com

RhinoPak 2000 – a "sport-ute" case for H/PCs featuring cordura, or ballistic nylon outer, belt loops, padded inner shell, securing straps, battery pouches, utility pockets, pen/stylus holder; $49.95; Rhinoskin; 307-734-8833; www.rhinoskin.com

Targus Handheld Cases – a variety of cases accommodate all popular models of H/PCs and Ps/PCs; $19.95-$99.99; Targus fulfillment line; 800-400-1011; www.targus.com

The PalmSuit – a black neoprene case for the Palm-size PC family of products. It offers an internal pocket for PCMCIA or credit card storage, a rugged zipper, heavy-duty screen protection, a reinforced plastic ring for attaching a handle, a belt loop, optional velcro attachment for your Palm-size PC, and an external pocket; $24.95; MarWare; 510-337-6667; www.marware.com

The Pouch – neoprene and nylon cases made of cushioned, shock-resistant material. Custom sized for every H/PC; $18; The Pouch; 800-727-6824; www.microwest.com/thepouch

The WinCE Suit – a black neoprene case with a rugged zipper, a reinforced plastic ring for attaching a handle and optional velcro attachment for your WinCE device; $27.95; MarWare; 510-337-6667; www.marware.com

Viatek Cases – high quality leather and composite cases and external batteries for H/PCs; $24.95 (without battery), $219.95 with battery and high quality leather case; Viatek; 817-430-2075; www.viatek.com

XLC Executive Leather Cases – genuine black leather cases for HP's Palmtop PCs or (any other brand of the same sizes). They feature pockets for cards and checkbook, notepad, and choice of Parker pen or pencil; $44.95 to $49.95; A One-Stop Palmtop Shop; 800-709-9494; www.mrpalmtop.com

Connectivity

EZ2 TV Encoder – connect your Windows CE H/PC with a VGA or NTSC monitor; $350 and up; EZShow Systems Inc.; 604-299-2033; www.ezshow.com

Mobile Konnector – takes the signal from digital (PBX) phone systems and converts it to a safe, standard analog signal used by most fax/modems. Includes 2 9V batteries; $149.95; Unlimited Systems; Phone: 619-622-1400; www.mplanet.com

MobileNetworker CE PC Card LAN adapter – a low-power, Windows CE-com-

Travel 120™ PCMCIA LS-120 SuperDisk™ Drive
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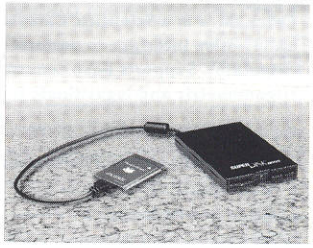
Now enjoy the benefits of the same drive as desktop and notebook users! Use it with standard 3.5" 720 Kb and 1.44 Mb diskettes. Or with 120 Mb SuperDisk diskette media. Eliminate the need for connectivity kits and a notebook or desktop PC, just to transfer files to another diskette or hard drive. Use it to download large files from the Internet, run large graphics presentations, transfer files between your H/PC and notebook or desktop computer, and even to run or load programs from a floppy. Save costly space on your compact flash and PC memory cards, or free up system memory on your H/PC. Carry it anywhere. It's small enough to fit in your jacket pocket!



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patible LAN adapter; $99; TDK; Phone: 800-999-4TDK; www.tdksystems.com

SupplyNet modem connectivity cables – supplies replacement connectivity cables for most PCMCIA modem cards; price varies; SupplyNet; 800-826-0279; www.thesupplynet.com

Pretec CompactLAN Cards – adds an Ethernet 10BaseT/2 or Ethernet 10BaseT adapter to Windows CE 2.0 devices, includes 16k buffer memory for faster network transmissions; $129; Pretec Electronics; 510-440-0535; www.pretec.com

SlimSCSI 1460 – adds an SCSI port to H/PCs with Type II PC Card slots (not C/F slots); $175; Adaptec; 408- 945-8600; www.adaptec.com/

Socket Low Power Ethernet Cards – PC and CF Card Ethernet adapters that let you connect your PC Companion to your LAN for fast synchronization and file transfer. Available in 10BaseT or 10BaseT/10Base2 configurations with removable or fixed cables; $149 and up; Socket Communications; 800-552-3300; www.socketcom.com

Socket Ethernet I/O PC Cards — adds an Ethernet and a serial port with a single PC Card. Also includes a DB-9 serial cable; $279 and up; Socket Communications; 800-552-3300; www.socketcom.com

SS&S MultiPort Docking Station for Handheld PCs – allows from 16 to 128 H/PCs to be connected simultaneously to a single host computer for synchronization; price varies; Shier Systems & Software; 805-371-9391; www.shier.com

Voyager VGA for H\PC – VGA adapter PC Card lets you display Pocket PowerPoint presentations on VGA monitors and VGA projectors; $350; Colorgraphic Communications; 770-455-3921; www.colorgfx.com

GPS

Marco Polo GPS Card – adds a GPS receiver to Handheld PCs (see review, page 28); $699 and up; Peak Development; + 01489 796979 (UK); www.peak-development.co.uk

PC & C/F Card Readers

Accent card readers – a small PC card reader that connects to a desktop PC and lets you access CompactFlash cards from your desktop PC; price varies; Prima International; 510-724-3000; www.prima-intl.com

CardDock Desktop PC Card Reader/Writer – a PC Card reader for desktop PCs. Mounts internally and can read two cards at the same time; $149 ($298 for a 4-slot); Greystone Peripherals; 800-600-5710; www.grystone.com

Card-link Model CL680 – an external PC Card reader for desktop computers. Sits on your desk and connect via cable to the desktop's parallel port; $179.95; Steele Creek Technologies; 704-588-1780; www.cardlink.com

Flashdrive Card Readers– a series of PC Card readers for desktop PCs; $99 to $159; Envoy Data; 800-368-6971; www.envoydata.com

ImageMate CFI Card Reader – SanDisk's ImageMate connects to your desktop or notebook PC's parallel port and lets you read from and write to CompactFlash storage cards (see review, page 22); $99; SanDisk; 408-542-0500; www.sandisk.com

Pretec USB Interface CompactFlash card reader – a CompactFlash card reader that attaches to your desktop PC via a high-speed USB interface; - $79; Pretec Electronics; 510-440-0535; www.pretec.com

Pretec Internal CompactFlash card reader for Desktop PC – a CF card reader that mounts in a standard 3.5" drive bay, adding a PCMCIA 2.1-compliant PC Card reader to your desktop PC; $29; Pretec Electronics; 510-440-0535; www.pretec.com

PC Fax/Modem Cards

33.6 Communicator – a 33.6kbps PC Card data/fax modem with the SimpleJack connector which eliminates the need for interface cables; $199; Simple Technology; 800-367-7330 (for dealer locations); www.simpletech.com

33.6 Fax/Modem Card – PC Card fax/modem with bFAX software included; $149; MagicRAM; 800-272-6242; www.magicram.com

ActionTec DataLink Cards – 28.8 and 33.6 Fax/Modem Cards; $105 for 28.8; $135 for 33.6; ActionTec Electronics; 714-851-8242; www.actiontec.com

Apex Data 33.6 Mobile Plus Modem Card V. 34 – a low-power 33.6kbps modem card; $159; Mobile Planet; 800-675-2638; www.mplanet.com

Cellular Companion 5630CE PC Card fax/modem – a V.90 56K PC Card fax/modem that lets you connect your H/PC to analog/ digital PCS/GSM cellular phones; $169; TDK; 800-999-4TDK; www.tdksystems.com

CreditCard Ethernet+Modem 33.6 with MiniDock – a high-performance 10Mbps

Calcy Force is a Scientific Calculator for the H/PC, providing users with an intuitive interface to perform all the basic functions you need from a calculator. Supports base conversions, arithmetic, logical, trigonometric and logarithmic functions.

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CALCY Force

Ethernet adapter and high-speed 33.6Kbps modem in a single PC Card; $309; Xircom; 800-438-4526; www.xir com.com

CreditCard Modem 33.6 – a high-speed 33.6 PC Card fax/modem featuring Digital Shield, cellular support, LEDs, a simple installation program; $219; Xircom; 800-438-4526; www.xircom.com

CyberExpress 5620CE PC Card fax/modem – a V.90 56K PC Card fax/modem for your handheld PC, special idle power mode saves power; $129; TDK; Use with H/PCs; Phone: 800-999-4TDK; www.tdksystems.com

EXP Data Traveler 336E – a cellular-ready 33.6Kbps PC Card fax/modem with a detachable battery pack that powers the card for up to two hours of continuous use; $189.95; EXP; 800-397-6922; www.expnet.com

EXP ThinFax CE/M Card – a combo card that includes 33.6 kb/sec cellular fax/modem and 4, 8 or 16 Mb of flash memory. A detachable battery pack provides up to two hours of mobile communications; price varies; EXP; 800-397-6922; www.expnet.com

Kingmax Fax/Modem Cards — fax/modem cards for Handheld PCs; price variew; Kingmax; 909-468-0958; www.kingmax.com

Montana 33.6 PC Card Modem/Fax – a combination landline and wireless fax/modem card. Interfaces with Motorola cellular phones; $200; Motorola; 800-427-26252; www.mot.com/pccards

MobileNetworker CE PC Card LAN adapter – a low-power, Windows CE-compatible LAN adapter; $99; TDK; 800-999-4TDK; www.tdksystems.com

Pretec 56K Fax/Modem PC Card:V.90+K56flex – adds a PCMCIA 2.1 Fax/Modem, providing up to 56Kbps download data transmission and 14,400bps send & receive Fax. Works with CE 2.0 and above H/PCs with PC Card slots; $129; Pretec Electronics; 510-440-0535; www.pretec.com

Pretec CompactModem Card – adds a ITU-T V.90 & K56flex modem to H/PCs, H/PC Pros, Ps/PCs (does not work with the Casio E-10/11); $199; Pretec Electronics; 510-440-0535; www.pretec.com

Viking's V.90 Windows CE PC Card Fax/Modem— $149.99; Viking Components; 800-338-2361; www.vikingcomponents.com

PC & C/F Memory Cards

The following companies manufacture and/or market PC/CF storage cards:

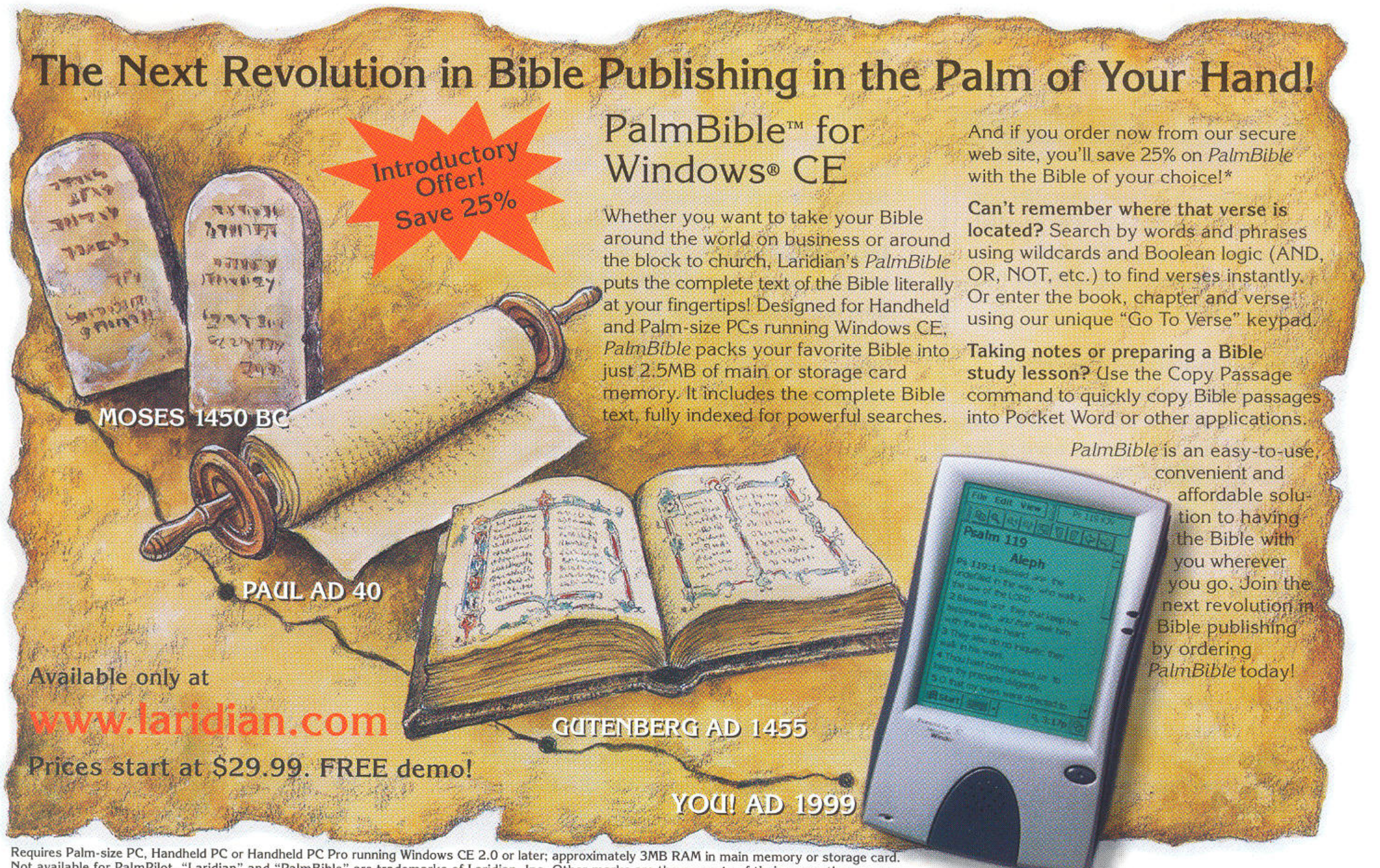
Centennial Technologies; 800-942-0018; www.cent-tech.com

Eiger Labs; 800-653-4437; www.eigerlabs.com

Envoy Data; 800-368-6971; www.envoydata.com

Kingmax; 909-468-0958; www.kingmax.com

MagicRAM; 800-272-6242; www.magicram.com



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MGV Memory DRAM Cards; 800-440-4648; www.mgvgroup.com

PalmTree Products; 781-871-7050

Pretec Electronics; 510-440-0535; www.pretec.com

SanDisk Corp; 408-542-0500; www.sandisk.com

Raymond Engineering, Sentinel Severe Environment Cards; 860-632-4582; www.raymond-engrg.com

Simple Technology; 800-367-7330; www.simpletech.com

Microtech International; 800-570-9547; www.microtechint.com/stormate.html

PNY VersaCards; 800-PNY-7079; www.pny.com

Synchrotech; 213-368-3760; www.synchrotech.com

Viking Components; 800-338-2361; www.vikingcomponents.com

Printers

Pentax PocketJet II – a small, 1.1 pound 300 dpi thermal printer that connects to an H/PC's serial port; $269; Pentax Technologies; 800-543-6144; www.pentaxtech.com

Serial Adapter and Cables

Link-A-Printer – a serial-to-parallel converter connects Handheld PCs to parallel printers (see review, page 21); $59; Greenwich Instruments; 800-476-4070; www.greenwichinst.com

Pygmy Serial-to-Parallel Converter Cable – a s/p converter cable with high-speed built-in buffer to allow reliable communications, plus the software needed for printing; $49.95 (hardware only), (software $29.99); Pygmy; 888-807-4472; www.pygmy.com

Socket Serial I/O Cards – adds a fast COM port for attaching serial devices such as external modems, GPS receivers, bar code scanners, etc. Available with removable or fixed DB-9 serial cable, in PC Card or Compact Card versions; $169 and up; Socket Communications; 800-552-3300; www.socketcom.com

Socket Dual Serial I/O Cards – adds two independent serial communication ports to your H/PC. Available with fixed or removable DB-9 serial cables; $249 and up; Socket Communications; 800-552-3300; www.socketcom.com

SSP-100 Serial Adapter – slips into the PC Card slot of an H/PC and adds a serial port; $169; Quatech; 800-553-1170; www.quatech.com

Wireless & IR Communications

ACTiR 100M Printer Adapter – adds an IrDA port to a printer, which enables printing from any IrDA device, including PC Companions; $95; ACTiSYS; 510-490-8024; www.actisys.com

ACTiR 220L Infrared Adapters for PCs – add an IrDA port to a desktop PC, making it possible to transfer data and synchronize via a PC Companion's IrDA port; $65; ACTiSYS; 510-490-8024; www.actisys.com

AirData Mouse – a desktop PC mouse with an IrDA port built in. Use as a traditional mouse to navigate on your desktop, and to communicate with your Windows CE PC Companion; $49.95; Selectech; 802- 878-9600; www.selectechltd.com

BeamLink – a pager with IrDA port that communicates with your PC Companion's IrDA port; $49.95; JP Systems; 972-484-5432; www.jpsystems.com

IrDA Infrared Drive – adds IrDA data transfer capability to your desktop PC, letting you exchange data with your PC Companion; $75; J.D. Research; 714-282-3995; www.baybeamer. com

JetEye PC 9680 – adds an infrared interface to your desktop PC; $71; Extended Systems; 208-322-7575; www.extendsys.com

JetEye Printer – adds an infrared interface to any parallel-port printer, enabling printing via the PC Companion's IrDA port; $179; Extended Systems; 208-322-7575; www.extendsys.com

Megahertz AllPoints Wireless PC Card – a PC Card transmitter/receiver that enables real-time, two-way access to critical business information with wireless email, faxing, database access, and messaging over the Bell South Wireless Data Network. Can be purchased separately, or as part of a wireless service plan; price varies; 3Com, Mobile Communications Division; 800-527-8677; www.3com.com. Bell South Wireless Data (formerly RAM Mobile Data); Phone: 800-726-3210, ext. 478; Fax: 800-763-1110; www.bellsouthwd.com

Personal Messenger Wireless Modem Card – a wireless modem card used with the ARDIS Network to send and receive messages, exchange email, connect to your office network, and access on-line services without having to connect to a phone jack; varies; American Mobile; 800-494-1732; www.ammobile.com

Proxim RangeLAN2 Wireless Networks – lets the H/PC connect to a wireless local area network (see review, page 26); price varies; Proxim; 800-229-1630; www.proxim.com

Sage CDPD Wireless Modem – a wireless CDPD with its own rechargeable battery pack, AC adapter, cable, and Windows CE software. Sage attaches to the H/PC's serial port and acts like a standard AT modem; $419; Novatel Wireless; 888-888-9231; www.novatelwireless.com

SmartBeam – adds an external, IrDA-compliant infrared port to your desktop PC; $49.95; Belkin Components; 800-223-5546; www.belkin.com

WaveLAN Wireless LAN PC Card for OEM developers – a small IEEE 802.11-compliant wireless LAN adapter for mobile computer platforms, including Windows CE 2.0 devices. The PC Card provides 2 Mbps throughput and includes radio and controller and two standard antenna options; price varies; Lucent Technologies; 800-WaveLAN; www.wavelan.com

My Favorite HARDWARE ACCESSORIES for Windows CE

BY CRAIG PEACOCK

In most of my previous articles I've written for *Handheld PC Magazine* I've discussed how I use Windows CE and what some of favorite and most used software applications are. In this I talk about some of the hardware that makes CE much easier for me to use and complements it quite nicely. I use a H/PC Pro and a Palm-size PC daily for different tasks and I've come to rely on several items of extra hardware to help.

Socket Ethernet adapter for fast communications

I use the LPE Ethernet adapter Card from Socket Communications to connect my H/PC Pro to my Windows NT desktop PC (prices start at $149, Web: www.socketcom.com). Synchronizing my Calendar, Contacts, and Inbox, and some other files takes less than 1 minute, and a full backup of my 16 MB H/PC Pro to the PC takes less than 2 minutes!

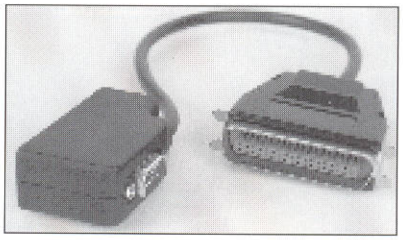
The Socket card comes in very handy for lots of other tasks as well. For example, I work in the IT department of a bank and I use my H/PC Pro device and Socket LPE Ethernet card to perform various system administration tasks, such as telneting into Unix computers to make sure they are running OK, and FTP'ing log files to my device for later examination.

I've also accessed our Telephone switch via Terminal Emulation on the H/PC to modify configurations. And I regularly use the H/PC Pro and Ethernet card combination to print to Network printers and share files with colleagues on Windows NT Servers.

Once I used my H/PC Pro and Ethernet card combination as a Web server, demonstrating to a colleague that you don't need $4,000 of hardware to accomplish that task. Then I pulled out another H/PC device with another Socket Ethernet card, connected to the H/PC Pro via its Ethernet card, to create a small, battery-powered Intranet site. I used just two CE machines, two network cards, everything working on the H/PC's batteries. One of the main strengths of the Socket card over many other Ethernet cards is that it has been designed for low-power usage.

Greenwich Serial-to-parallel adapter

I've also found Greenwich Instruments' GA935CE Serial-To-Parallel Adapter very handy (price: $59, www.greenwichinst.com). If I'm at a remote location and can't access a network printer, I use the serial-to-parallel adapter to connect my H/PC to any printer I find. The Greenwich Serial-Parallel converter is powered by its own AA battery and does not drain the H/PC's batteries. bSQUARE's bPRINT (price: $29.95, Web: www.bsquare.com) helps me print out single and multiple copies of documents quickly and easily. Another great printer solution is Westtek's JETCET PRINT (price: $39.95, Web: www.westtek.com). JETCET PRINT adds color printing capability to the H/PC, along with printer support for most popular printers.



Connecting my H/PC to my Nokia cell phone with TDK GlobalPulse CE

Also in my cable bag and a product that is just great is TDK's GlobalPulse CE (price: $na, Web: www.tdksys.com/Products/soft mob/indexce.html). GlobalPulse CE installs a software application that simulates the actions of a modem on your H/PC or Palm-size PC (a "soft modem"). GlobalPulse CE also comes with a cable that connects to the end of my H/PC's or Palm-size PC's serial connectivity cable. The package lets me connect to my Nokia cellular phone and use it to dial into my ISP to access e-mail and the Web. Although the digital cellular network speed is only 9600 bps, it is fine for checking e-mail.

CompactFlash storage cards, backups and more

I use SanDisk CompactFlash storage cards to carry extra data with me and to backup my systems. I quickly filled up one 8MB card and just recently bought another 32 MB one. I use them to store documents I occasionally need, but don't look at all the time. I also use bSQUARE's bUSEFUL Backup Plus to backup my PC Companions when I'm on the road (part of the bUSEFUL Utilities Pack priced at $79.95,, Web: www.bsquare.com). I've never lost any data on any of my CE devices but backing up is a good thing to get into the habit of doing and doesn't take long.

Although you can't purchase them in England yet, my next hardware purchase will be an Iomega Clik!Drive (see review on page 24). These external drives are similar to Iomega's larger Zip Drives. Their 40 MB storage cards costing about $9.99 each. I suppose that with data stored on so many different media, I'll have to write a database to keep track of everything. ■

Craig maintains and writes for two of the most popular Windows CE Web sites: www.palmpc.org.uk for H/PCs and www.craigtech.co.uk for Palm-size PCs. He has written a number of articles on Windows CE for U.K. publications and later this year will publish a book on Windows CE, to be titled Windows CE Made Simple (Pub. Butterworth Heinemman, Web: www.bh.com).

Flash Memory!

Never Run Out of Power or Lose Data!

SanDisk ImageMate CompactFlash reader, CompactFlash data storage cards, and CF to PC Card adapter.

BY RICH HALL

Traditional floppy discs and hard discs are relatively inexpensive "non-volatile" means of storing data. Once you save data to them, you can turn off your computer and go home, safe in the knowledge that the data will be there the next time you need it.

The internal data storage memory on any Windows CE PC Companion is different. It's made up of computer chips that have to have a small current of electricity running through them all the time. That's why your PC Companion has backup batteries — to keep the data storage memory alive in case the main batteries die.

The internal storage memory is still pretty safe, but it's "volatile" and relatively limited. If both the main and backup batteries ever die at the same time, you lose all the data on your PC Companion. That's why it's important to back up your data daily. It's also why SanDisk "Flashdisk" products are important to PC Companion users.

SanDisk non-volatile flash memory

SanDisk was founded in 1988 under the name SunDisk. The company designs, develops and markets "flash memory" data storage products used in a wide variety of electronic systems. You're probably most familiar with their PC Card and CompactFlash storage (memory) cards. Unlike the storage memory built into the PC Companions, SanDisk's "Flash" memory is non-volatile. No batteries are needed to keep the memory alive. A small electric current is needed to read to and write from flash memory, but that's provided by the PC Companion.

SanDisk pioneered industry development of flash memory cards for data storage and helped set many industry standards. SanDisk markets flash memory in a number of different forms. The first are the ATA Type II PCMCIA Flash Cards (also called "PC Cards"). These are about the size of a fat credit card. Most of the earlier and current Handheld PCs, and many notebook PCs come with slots that accept these cards. SanDisk also markets flash memory in the CompactFlash card size. These are about 1/3 the physical size of the PC Cards. All of the newer Palm-size PCs and many of the newer H/PCs have CompactFlash slots that accept these cards. Many digital cameras also use CompactFlash cards to store images and transfer them to computers. SanDisk also manufacturers "MultiMedia Cards," small postage-stamp-sized cards also used with digital cameras. Finally, SanDisk manufacturers flash memory chip-sets for hardware developers.

Adding extra data storage to PC Companions

Again, the benefits of flash memory cards are that they provide extra non-volatile data storage for your PC Companion. This lets you carry more important data with you, and gives you a safe place to back up important data when you're away from the office.

I've been using SanDisk cards since 1992 and as far as reviews go, there's really not much to say. They do what they're supposed to do and I've never lost any data stored on one. Saving and opening files from a SanDisk storage card is faster than with traditional hard and floppy disks. However, it is slightly slower than saving and opening files stored on the PC Companions' internal memory. You may notice it with larger data files.

For this review, I got some samples from SanDisk, including an 85 MB PCMCIA PC Card, a 48 MB CompactFlash Card, a CompactFlash to PC Card adapter, and ImageMate CompactFlash card reader.

Both the 85 MB PC Card and the 48 MB CompactFlash card worked as advertised. I used Backup Plus (from the bUSEFUL Utilities Pack, $79.95, www.bsquare.com) to backup a NEC MobilePro 750C and an Everex Freestyle to both the PC Card and CompactFlash Card, with no problems. I restored both devices from the storage cards, still no problems.

I backed up the working files for this (May/June 99) issue of *Handheld PC Magazine* onto both SanDisk cards. These included text, graphics, Word and Excel files, and more. These files reside on my desktop PC and to copy them to the storage cards I used a PC Card reader built into my desktop PC, and the ImageMate CompactFlash reader, furnished by SanDisk. Copying the files over was fast, and I had room to spare on both cards. I'll be using the 85 MB card from now on to keep a daily backup of the current issue, and text or html versions of past issues with me at all times.

ImageMate CompactFlash readers for desktop PCs

SanDisk's ImageMate adds an external CompactFlash reader to your desktop PC, making it simple and easy to copy data back and fourth between the desktop PC and PC Companion. ImageMate looks like a large mouse at the end of a thick cable. Connect ImageMate to your desktop PC's parallel port, install the ImageMate software, and you're ready to go.

You use ImageMate in the same way you'd use a floppy disc drive. Slip the CompactFlash card in; copy, delete, or save files; and slip the CF card back out. Windows Explorer and other desktop PC software applications recognize ImageMate as just another disc drive. Once it's set up it's very easy to use. It has a "no-slip" rubber base, but you still have to hold it with one hand when you insert the CompactFlash card. I used double-sided tape to firmly mount ImageMate on top of my desktop PCs monitor. It's easy to reach and doesn't take up space on my cluttered desk. ImageMate is available in parallel port and USB port versions. I tested the parallel port version. I imagine the data transfer rate is faster on the USB port model, but I don't think the difference would be noticeable to most users.

CompactFlash to PC Card Adapter

This is a simple adapter that turns the smaller CompactFlash card into a larger PC Card. This lets you use the CompactFlash card in any Type II PC Card slot. The adapter is exactly the size of a PC card, with a slot in one end. You slip the CompactFlash card into the adapter, and slip the whole thing into the PC Card slot of an H/PC. Again, it's simple and it works.

You should have one!

This decision is pretty much of a "no-brainer" for H/PC users. A PC Card or CompactFlash card provides a little extra storage space plus a place to back up important data, and you never have to worry about running out of power and losing data. A 4 MB CompactFlash card is as little as $39, and provides ample extra storage space for most users. If you need to carry a lot of data around with you, take a look at the higher-capacity PC and CF storage cards.

I'm the editor of a computer magazine and get most things given to me for free. One of the few accessories I've bought in the last three years is a SanDisk PC storage card. I'll probably stick with CompactFlash cards from now on. They're a little less expensive per megabyte of storage, and they're more flexible. They can be used in Palm-size PCs, most Handheld PCs and H/PC Pros, and even in many digital cameras. There are a few H/PCs that only have the larger PC Card slots, but even then an inexpensive adapter lets you use a CF card with them.

About the only advantage I can see for the PC Card format is that it is physically larger. SanDisk will probably be able to squeeze more storage capacity onto one. But SanDisk has already announced a 160 MB CompactFlash card (and competitor Pretec has announced a 320 MB CF Card, see page 19). I really don't see many end users needing that much extra storage space, unless they use a storage card to back up their notebook or desktop PC. ■

PC Card and CompactFlash cards available from SanDisk

The following SanDisk cards are available from the SanDisk Online Store at: www.sandiskstore.com/ (links to Big City Express site). SanDisk cards are also sold by many computer retailers and PC Companion manufacturers.

- ATA Type II PCMCIA Flash Cards (PC Cards) — can be used to add storage memory to Handheld PCs or desktop PCs with a standard PC Card slot. Cards available include: 4 MB - a $54; 8 MB - a $64; 10 MB - $94; 20 MB - $109; 40 MB - $209; 60 MB - $259; 85 MB - $349; 110 MB - $449; 150 MB - $624; 175 MB; $699; 220 MB - $899.
- CompactFlash Cards — can be used with Palm-size PCs or Handheld PC with CF slots. Can also be used with an adapter in an H/PC or desktop PC standard PC Card slot. Cards available include: 4 MB - $39; 8 MB - $49; 10 MB - $59; 15 MB - $69; 20 MB - $99; 30 MB - $129; 40 MB - $149; 48 MB - $169 (SanDisk has announced that it will have 64 MB, 80MB, 96MB, and 160MB CompactFlash cards available this year.)
- CompactFlash to PC Card Adapter - $12

CompactFlash Readers — add a CF card reader to desktop PCs or iMacs.
ImageMate Parallel — $69
(Connects to desktop/notebook PC parallel port.)
ImageMate USB/iMac — $89
(Connects to a USB port or iMac.)

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"Clik! is a reasonable alternative for backing up your H/PC and a great alternative for taking extra data with you wherever you go!"

CLIK!

iomega
clik!

IOMEGA'S NEW CLIK! DRIVE

BY RICH HALL

Clik! is the new data storage device from Iomega that adds affordable data storage to Handheld PCs, notebook PCs and digital cameras. Clik! is an external drive that connects to the H/PC via cable and PC Card. It's small and easy to carry with you in a briefcase or large handbag, but you can't leave it connected to the H/PC all the time. Because of this, I think it's more suitable for storing backups and archival data. Leave the data you need immediately on your H/PC's internal memory. Back that up on Clik! and keep archived letters, reports, graphics, company templates, data sheets and the like on the Clik! disk. You can connect the Clik! Drive up to your H/PC in seconds and download the data you need.

Clik! Drive Plus: A very complete package

I reviewed Clik! Drive Plus, Iomega's top-of-the-line Clik! package for mobile computer and digital camera users. The Clik! Drive comes with two additional packages, one for digital camera users only (which does not include the PC Card Interface), and another for H/PC and other mobile computer users (which does not include the Flash Memory Reader).

Clik! Drive Plus comes with:

- Mobile Drive and Battery — the external drive that reads the disks and the battery that powers it. The Mobile drive with battery is a little smaller, but twice the thickness, of a Palm-size PC.
- Clik! Disk (and plastic case) – a 40MB removable disk that holds the data.
- PC Card Interface — PC Card and cable lets you connect the Mobile Drive to your Windows CE 2.0 H/PC, notebook computer, or any PC with a PCMCIA card drive. You cannot connect Clik! to a Palm-size PC.
- Flash Memory Reader – Clips on to the Mobile Drive and lets you copy data files from a CompactFlash or SmartMedia card directly to a Clik! Disk in the Mobile Drive. Many digital cameras save images on one of these two storage cards. The Flash Memory Reader is included primarily for that use, but there's no reason why a PC Companion user couldn't use the device to copy data from a CompactFlash Card to the Clik! Disk. However, the single-button copy function is an all-or-nothing proposition. You push the button and it copies everything from the CF Card to the Clik! Disk.
- Desktop Dock — similar to a PC Companion's data cradle. Connects to your desktop PC using the Parallel Port Interface described below. Slip the Mobile Drive into the Desktop Dock to copy files back and forth between the Mobile Drive and desktop PC. Desktop Dock powers (and recharges) the Mobile Drive. The Desktop Dock provides another way for H/PC users to transfer data to and from their desktop PC.
- Parallel Port Interface — connects Desktop Dock to the parallel port on your desktop or notebook PC. The Parallel Port Interface has an additional pass-through parallel port attached to it, letting you attach the Desktop Dock and a printer to a single parallel port.
- Power Supply — an AC/DC adapter used to power the Mobile Drive or the Desktop Dock.

Clik! also comes with desktop PC and Windows CE software on CD ROM. Once installed, the Windows CE software adds a toolkit and backup application to your H/PC. The toolkit lets you format or write protect the Clik! Disk. The backup application lets you do complete system backups and restores. I backed up 5MB of data from my NEC 750C to the Clik! Disk in a little over 3 minutes. This is faster than backing up via the serial cable, but slower than backing up to a PC or CF storage card. Restoring the data took about the same amount of time.

Once it's connected to the H/PC via the PC Card Interface, the Clik! Drive appears in the "My HPC" screen as a folder labeled "Storage Card." You can use My HPC to copy files between the H/PC and the Clik! Disk, as well as moving or deleting files.

Inexpensive backup and archive

The Clik! Drive Plus package comes with a single 40MB Clik! disk and costs $199. A single 40MB CompactFlash Card, at around $149, is a less expensive and more convenient storage solution if all you need is 40MB of extra data storage. However, Clik! starts to make more sense if you need to carry a lot of data around with you. Additional 40MB Clik! disks cost about $15 each in a package of two ($10 each in packages of 10). A Clik! Mobile Drive with three 40MB disks would cost about $230, as opposed to $450 for three 40MB CompactFlash Cards.

PC and CompactFlash Cards are a little more convenient, but Clik! isn't far behind. It's small and light enough to carry around in your briefcase. It connects easily to your H/PC. It has it's own rechargeable battery so you won't drain your H/PC's power. And it uses relatively inexpensive disks. You can't leave it attached to your H/PC all the time, but the truth is that you don't really need instant access to vast megabytes of data. In my opinion, Clik! is a reasonable alternative for backing up your H/PC and a great alternative for taking extra data with you wherever you go. ■

Clik Mobile Drive for mobile computing — $199
Clik Mobile Drive for digital photography — $249
Clik! Drive Plus — $299
Clik! disks (40 MB each, package of 10) — $99.99
Contact: Iomega; Phone: 800-MY-STUFF
Web: www.iomega.com

Travel 120

adds a portable floppy disk drive to your H/PC

PassportCard
ACCURITE
SUPER DISK DRIVE

BY RICH HALL

The Travel 120 SuperDisk Drive is one more data storage and backup alternative for Handheld PC users. The Travel 120 is a small, lightweight and very portable floppy disk drive that accepts standard 720K and 1.44MB floppy disks, as well as the newer 120MB "super disks."

Travel 120 connects to a Handheld PC or notebook computer via a PC Card interface cable. Once installed and attached, the Travel 120 appears in Windows Explorer as a Storage Card. You can use Explorer to transfer files back and forth between the H/PC's internal memory and floppy disks in Travel 120.

Installation is simple. Connect your H/PC to your desktop PC and run Travel 120's SetupCE application. This installs a special driver on the H/PC that lets it "see" Travel 120. Then, slip the 120's PC Card interface into the H/PC's card slot, and insert a floppy disk. You're ready to start transferring files back and forth. Since the H/PC thinks Travel 120 is just another storage card, you can use utilities (like bUSEFUL Backup Plus, www.bsquare.com) to backup your H/PC's data.

Although the Travel 120 is designed to take its power from the host's PC Card slot, the H/PC does not have enough power to operate it. The Travel 120 comes with an AC power adapter that you have to use when connecting to an H/PC.

Floppy disks are a slower medium than flash cards, and it takes longer to transfer data back and forth. Still, the Travel 120 is pretty fast. I'd probably use it on the road to backup portable computers and carry important but not immediately needed documents and other data. Even with the AC adapter, Travel 120 is light and small enough to carry in a briefcase. But you do have to find a power outlet to use it.

The Travel 120 SuperDisk Drive has the advantage of being compatible with a variety of operating systems, including Windows CE 2.0 and above, Windows 3.x, 95/98, and DOS. The computer must have a PC Card slot to connect to Travel 120. It also has the advantage of using standard floppy storage media, which means that it makes it pretty easy for someone else to give you documents or other data. ■

Accurite's Travel 120 SuperDisk Drive — $269. For more information, contact Accurite Technologies, Inc. Phone: 510-668-4900; Fax: 510-668-4905; E-mail: sales@accurite.com; Web: www.accurite.com.

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Proxim Symphony

Wireless connectivity with your H/PC

BY CHRIS DE HERRERA

The term "mobile professional" conjures up images of rental cars and business lunches. But there is another kind of mobile professional, one who may never leave the office. You'll find these "office mobile professionals" in a meeting somewhere in the building, or on the way to one, or checking up on a project. They may have a permanent desk, but they're rarely sitting at it. And yet they still need to access important e-mail and other data from their personal computer or company LAN. This is why PC Companions were designed.

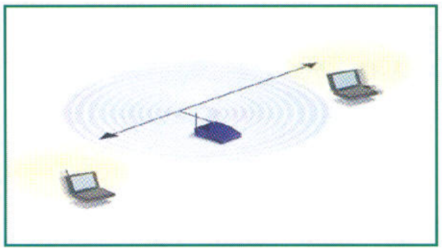
Symphony: LAN without cables

Symphony is a wireless LAN for home or small office use. A Local Area Network (LAN) is a group of computers linked together to share data. A wireless LAN uses radio transceivers attached to the LAN or computer to send and receive data over the air, minimizing the need for wired connections and enabling highly mobile users to access the data they need wherever they find themselves.

Symphony transfers data wirelessly at 1.6 megabits per second and is limited to 150 feet of coverage, with a maximum of 10 devices connected at one time. Symphony offers wireless transceivers in PC Card, ISA Card, modem and Ethernet bridge formats, allowing the user to connect a variety of devices together into a single wireless LAN. For users that need a longer distance or more devices, Proxim created the RangeLAN2 product which offers coverage up to 500 feet indoors and 1000 feet outdoors.

Handheld PC wireless connection

Symphony lets you link to other computers wirelessly, and while the office mobile professional would hardly carry even a small notebook computer around the office, they would carry a PC Companion.



Screen1: Proxim's Ethernet Bridge (center) is a small transceiver that connects to an existing LAN, allowing H/PCs with a Proxim Symphony Cordless PC Card or RangeLAN2 card to link wireless with the LAN.

Handheld PC users can connect to a Symphony network using one of two cards: The RangeLAN2 7400 PC Card and the Symphony Cordless PC Card. The RangeLAN2 card is the most straightforward solution. H/PC Pro systems already have the drivers built in, and most Windows CE 2.0 Handheld PCs will work with this card, if you install a special driver available on the Proxim Web site: www.proxim.com. [Note: Proxim has recently come out with a device that also works with H/PCs: the RangeLAN2 CE PC Card, priced at $295.]

Proxim does not officially support the use of the Symphony Cordless PC Card with the H/PC, but it is easy to implement and works well. I tested this card because it is the least expensive option available, $400 less than the RangeLAN2 7400 PC Card, and $100 less than the new RangeLAN2 CE PC Card. (See sidebar below for more on configuring the Symphony Cordless PC Card to work with an H/PC).

Configuring the Symphony PC Card for an H/PC

The Symphony PC Card must be configured to use an address in 10.0.0.2 through 10.0.0.255 with a subnet of 255.0.0.0 in order to interoperate with the other configured Symphony devices. Also you must know the IP address of your PC's Symphony card. You can identify the address from the Control Panel - Network application on your desktop. This address should be entered as your WINS server in order to synchronize with your desktop.

The first thing you have to do is download and install a special driver available on the Proxim Web site: www.proxim.com. Then on your H/PC, tap on Start - Settings - Control Panel - Network and select the Proxim driver. Then configure the card with the information you gathered above. Once this is complete you are ready to access your network.

Next, tap on the Proxim icon on your H/PC's task bar and edit the card's properties. You'll see the node address, master address and network domain. This is where you set the Domain (the channel number) and Security ID. All stations must use the same Domain and Security ID in order to communicate. Symphony only supports Domain 0.

The Site Survey tab allows you to search for all Master access points and then test the link quality. This allows you to identify dead zones in your location. The Advanced tab allows you to adjust roaming information as well as inactivity timeouts in seconds and minutes.

Your Symphony PC Card is now configured and can be used with a Proxim Symphony wireless LAN.

How I tested Symphony

I installed Symphony on my desktop PC and connected an "Ethernet Bridge" to it. The Ethernet Bridge is a small transceiver that communicates with the Symphony Cordless PC Card or RangeLAN2 cards in an H/PC. Together, this let my H/PC link to my existing 10baseT network. I was able to bridge

TCP/IP traffic without configuring the Ethernet Bridge. In order to use Windows CE Services, I had to install the Symphony card in my laptop PC and configure it. This allowed the Symphony PC Card to communicate via the Ethernet Bridge to my desktop for synchronization. The Symphony ISA card or modem do not require this configuration because they do not maintain a list of devices they know about.

This technology allows users to access the Web and synchronize their H/PC or H/PC Pro at higher speeds than the soon-to-be-released Bluetooth technology. Bluetooth is slower .

Once you have your Proxim Symphony PC Card you can synchronize with your desktop. If you want to surf the Internet you must purchase the Symphony Modem and configure Pocket Internet Explorer to use a proxy server and enter 10.0.0.1 as the proxy's address.

Symphony offers a low cost option to wiring a LAN for a home or a small office.

Proxim Wireless LAN solutions

Proxim offers complete wireless LAN solutions for small and large organizations. These include RangeLAN2 "Access Points" (transmitter/receivers that connect to the wired LAN) and RangeLAN2 7400 PC Cards (transmitter/receivers for mobile devices like the Handheld PC). Proxim recently announced the RangeLAN2 CE PC Card, a wireless LAN solution designed specifically for Windows CE Handheld PCs and H/PC Pros. ■

RangeLAN2 CE PC Card — $295
Symphony Cordless PC Card — $199
RangeLAN2 7400 PC Card — $595
Driver software — free; RangeLAN2 Access Points - contact Proxim Phone: 800-229-1630; Fax: 650-960-1984; Web: www. proxim.com.

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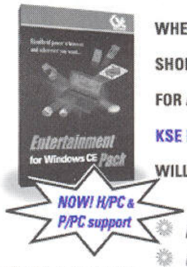

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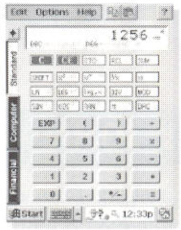

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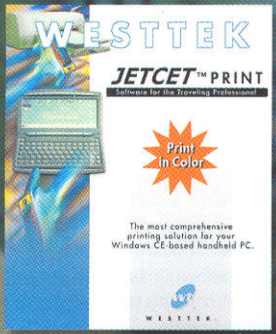
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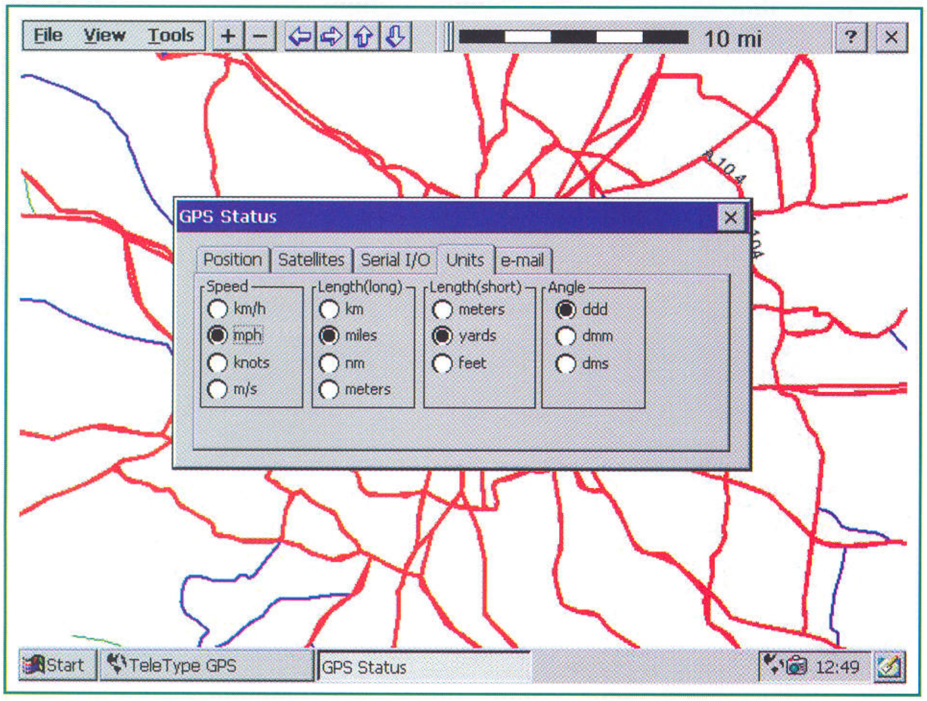
Travelling with Marco Polo

"Receivers like Marco Polo can be used to pick up signals from GPS satellites and tell you exactly where you are anywhere on the planet."

BY JOHN KENNEDY

Speaking from experience, an accurate map is an excellent reference to take along with you on a motorcycle tour of Europe. This is especially true if you're accompanied by two colleagues, and your combined sense of direction is that of a pack of dizzy bumblebees. But the problem with a map is that it still doesn't tell you where your are – at least most maps don't.

Fortunately, the map I took along was a GPS device name Marco Polo. GPS stands for "Global Positioning System." This is a network of satellites placed in orbit around the earth by the U.S (see sidebar). GPS receivers like Marco Polo can be used to pick up signals from these satellites and tell you exactly where you are anywhere on the planet. The information provided includes latitude, longitude, altitude, and direction and speed if you are moving.



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Position | Satellites | Serial I/O | Units | e-mail

Speed: ○ km/h ● mph ○ knots ○ m/s

Length(long): ○ km ● miles ○ nm ○ meters

Length(short): ○ meters ● yards ○ feet

Angle: ● ddd ○ dmm ○ dms

Screen 1: TeleType GPS software is rather basic, but with a some scanned images and work on the users part, could also be a useful tool (shown on full-screen H/PC Pro).

Marco Polo: a PC Card GPS receiver

Marco Polo is a PC Card version of the receiver that works with Windows CE devices, and includes software that displays a map on your H/PC's screen to show you where you are. We received a review kit from Peak in the UK. The hardware comes in two parts: a standard PC Type II (PCMCIA) card, and the antenna. The antenna is black and approximately the size and shape of a PC mouse. It's connected to the card by a 4 meter length of cable, which thankfully can be coiled up when not required.

Once inserted into a CE device, the GPS hardware appears as a new serial port. Once accessed at 4800bps it starts spewing out text strings in a standard format (NMEA) which list the GPS satellites in range, and finally the exact location (within 50 meters) of the receiver. The process takes a few moments to get going, and it doesn't work very well indoors. However, once outside the system can update your position every few seconds, and even calculate speed, heading and your height above sea level. Peak also sell versions of the Marco Polo card in CompactFlash and standard serial port format.

Map software shows you where you are

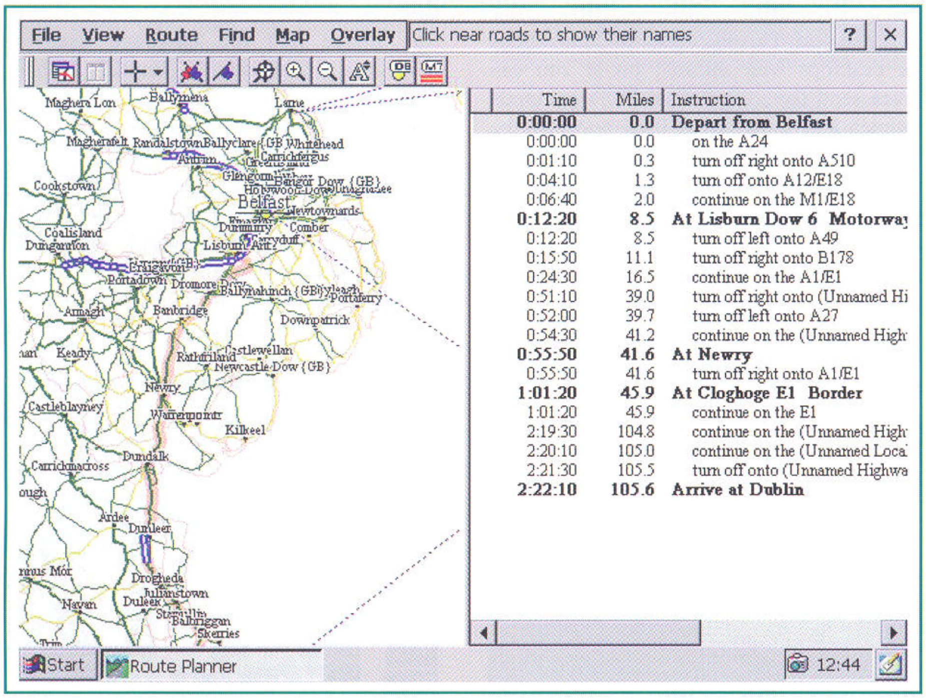
Peak supplied the TeleType GPS system software with the GPS card. Sadly, I found

John Kennedy (johntkennedy @sticky.net) is a technical journalist based in Northern Ireland (although he's open to offers). When he's not writing, he's programming Windows CE applications for Sticky Software.

Global Positioning System

This is a network of 24 satellites placed in orbit around the earth by the U.S, and declared operational in 1995. Transmitting on two separate L-band frequencies, GPS provides 24-hour instantaneous, precise and continuous three-dimensional navigation data to properly equipped military and civilian users in any weather conditions anywhere in the world.

Orbiting at 10,900 miles (20,200 km), the satellites complete a circuit of the Earth every 12-hours. Six satellites are above the horizon at any given time, at any location on the planet. A GPS device need only receive signals from four satellites to calculate time, location (latitude, longitude and altitude), direction and velocity. The signals are precise enough to calculate time accurate to greater than a millionth of a second (accurate to one second every 300,000 years), velocity within a fraction of a mile per hour, and location to within feet. The GPS system is designed to provide greater accuracy to military users, but continues to expand into the civilian area. GPS is used for accurate navigation aboard private and commercial aircraft, ships and boats, trucks and automobiles. Commercial handheld GPS receivers have been available for a few years. GPS systems are used in search and rescue operations, detailed mapping, geodetic surveys, and more.



Time	Miles	Instruction
0:00:00	**0.0**	**Depart from Belfast**
0:00:00	0.0	on the A24
0:01:10	0.3	turn off right onto A510
0:04:10	1.3	turn off onto A12/E18
0:06:40	2.0	continue on the M1/E18
0:12:20	**8.5**	**At Lisburn Dow 6 Motorwa**
0:12:20	8.5	turn off left onto A49
0:15:50	11.1	turn off right onto B178
0:24:30	16.5	continue on the A1/E1
0:51:10	39.0	turn off right onto (Unnamed Hi
0:52:00	39.7	turn off left onto A27
0:54:30	41.2	continue on the (Unnamed High
0:55:50	**41.6**	**At Newry**
0:55:50	41.6	turn off right onto A1/E1
1:01:20	**45.9**	**At Cloghoge E1 Border**
1:01:20	45.9	continue on the E1
2:19:30	104.8	continue on the (Unnamed High
2:20:10	105.0	continue on the (Unnamed Loca
2:21:30	105.5	turn off onto (Unnamed Highwa
2:22:10	**105.6**	**Arrive at Dublin**

Screen 2: Route Planner acts not only as a road atlas, but an intelligent journey planner. With GPS support, it's an useful travelling companion (shown on full-screen H/PC Pro).

the software to be a bit disappointing. The European maps supplied were very basic and lacked road names, city names, country outlines (see Screen 1). Although there is the option to import your own scanned maps, this isn't really an acceptable solution.

With a sigh of relief, I remember the Route Planner software from PalmTop BV, which had happen to arrive in the office the week previously, sent by UK distributor Widget Software. Route Planner is the Windows CE version of a well-known Psion product, and is therefore a mature and well-tested program. It is designed for planning journeys. Configure it so that it knows a GPS card is present and it's transformed into a real-time map. Your current position is marked by a rectangle, and is updated as you drive along (see Screen 2). Route Planner is available with detailed maps of Europe and the United States, and best of all costs less than TeleType.

Although Route Planner is described as working with Handheld PCs only, it worked well on the Vadem Clio H/PC Pro (sadly there was no StrongArm version available to test it on the HP Jornada 820). The maps looked very smart on the Clio's 640x480, 256-color display. I would think it should work with any H/PC with a MIPS or SH3 processor.

Lost between Genoa and Pisa

At £470 (approx. $699 U.S.), the price of Marco Polo is a bit steep. Still, the Marco Polo card and Route Planner are a great combination for travelers. If you find yourself lost on the road from Genoa to Pisa, you can pull out your H/PC, slip Marco Polo into your PC Card slot, and find out exactly where you are. Then use Route Planner to give you directions straight to your hotel. ■

Marco Polo GPS Card — £468.82, Contact: Peak Development, Tel: 01489 796979; Web: www.peak-development.co.uk.

Route Planner — £49.98, Contact: Palmtop BV, e-mail: info@palmtop.nl; Web: www.palmtop.nl; UK distributor: Widget Software; Tel: 01438 818 818; Web: www.widget.co.uk

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Scan & Share

Hewlett-Packard's new CapShare 910!

RechargAcell
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HEWLETT PACKARD

BY RICH HALL

This new "information appliance" from Hewlett-Packard is a portable handheld scanner used to capture text and images from printed material, and then share them with associates and friends. Although not a Windows CE device, it interfaces with Windows CE Handheld and Palm-size PCs.

Let's say you're reading an article and find a particularly interesting quote that you want to send to an associate. You could type it into an e-mail message, but the quote's a little long. Besides, there's an interesting graph with the quote. This is where CapShare comes in handy.

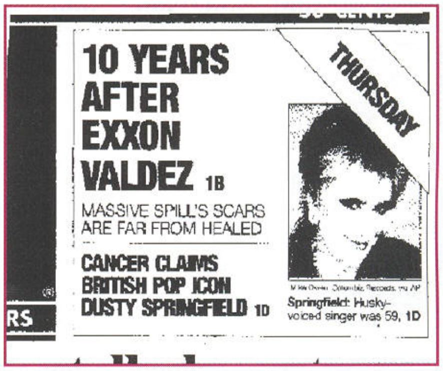
Lay the article down flat and place CapShare at the top of the page. Then press the "Capture" button, drag CapShare over the page and release the button (see bottom right illustration). CapShare captures a graphical image of the page (text and photos). CapShare is about 1/2 the width of a standard piece of paper, so if you want to capture the whole page, you drag CapShare down one side of the page, slide it over at the bottom, and slide it back up — all without lifting CapShare off the page. It took a little time getting used to this scan pattern, and remembering not to lift CapShare off the page. But once I did, it was very easy to use.

After capturing the image, you can send it to a desktop PC via a connectivity cable that comes with CapShare. You can also use a built-in infrared port to "squirt" the image to any device equipped with an IrDA infrared port. This includes PC Companions or desktops with infrared ports. You can even send the image to an IrDA-equipped printer and print out a hard copy of the image. Once the image is on your desktop PC or PC Companion, you can attach it to an e-mail and send it to an associate.

A closer look at CapShare

The HP CapShare 910 is very easy to use. Press one button and drag the device over the page to capture the image. The captured image is displayed on CapShare's small LCD screen. A magnify button will let you increase or decrease the size of the image. An orientation button lets you change the image from horizontal to vertical. And the delete button lets you erase the image. CapShare also has buttons to access help screens and the built-in "toolkit." The toolkit lets you configure the page size of the image and the language used in CapShare's menu options (English, French, German, Spanish, and Dutch.

You can capture documents, newspaper columns, business cards, receipts and more. CapShare's 4 MB of internal memory lets you capture up to 50 pages of letter-size documents. Its two rechargeable AA NiMH batteries power the CapShare for up to 100 letter-size captures and two full downloads of the internal memory.



THURSDAY

10 YEARS AFTER EXXON VALDEZ 1B

MASSIVE SPILL'S SCARS ARE FAR FROM HEALED

CANCER CLAIMS BRITISH POP ICON DUSTY SPRINGFIELD 1D

Springfield: Husky-voiced singer was 59, 1D

RS

1. Place CapShare at top of page
2. Press the Capture button
3. Drag CapShare over the page

Sharing images with PC Companions

Hewlett-Packard says that CapShare communicates with any of their Handheld PCs or H/PC Pros (HP 320LX and above). No mention is made in the package about other PC Companions, but I tested CapShare with an NEC 750C Handheld PC and there was no problem sending images to it. I strongly suspect that CapShare can send images to any Windows CE 2.0 and above H/PC. It's probably compatible with the IrDA port on the Palm-size PCs, but they don't come with a file explorer and I don't know how you would set those to "receive" an image.

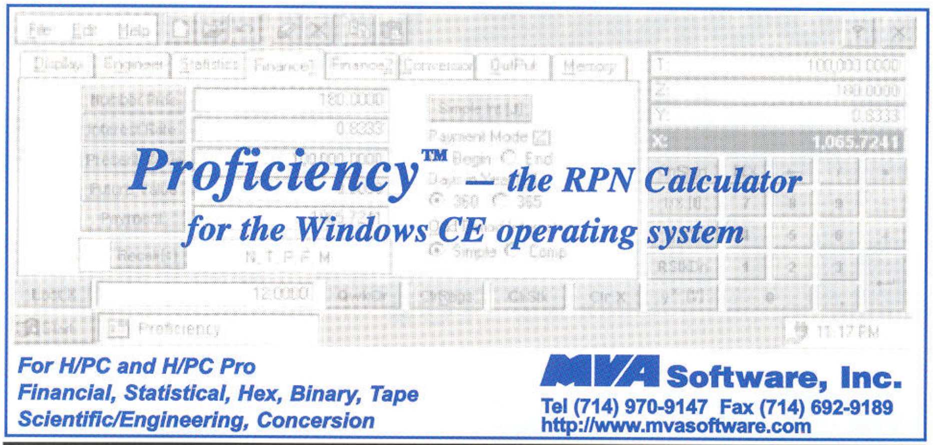
CapShare saves images in Adobe Reader's .PDF format and the standard .TIF graphics format. Once the image is transferred to the H/PC, the file can be attached to an e-mail and sent anywhere.

CapShare ships with a carrying pouch, a serial connectivity cable, an external NiMH battery charger and 4 AA NiMH rechargeable batteries. CapShare uses two AAs, so you have an extra pair for backup. HP doesn't recommend using regular Alkaline AA batteries. They'll work in a pinch, but CapShare will suck them dry pretty quickly. Also, I had a little difficulty removing batteries.

CapShare works fine with text, graphs and tables, but does not capture photos very well. If you need to capture high-quality images, stick to a flat-bed scanner.

Priced at around $700, CapShare is certainly not an inexpensive device. But if you find yourself tearing out newspaper columns, or photocopying magazine articles a lot, you might want to check it out.

For more information on the HP CapShare 910 and a list of HP resellers, call 877-473-6772 or visit HP's CapShare Web site at www.capshare.hp.com. ■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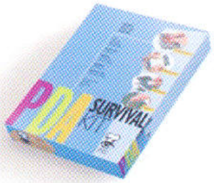
Cooking Up Exciting Accessories at Concept Kitchen

BY ED ZABREK

The most vulnerable (and expensive) component of your handheld computing device is the display screen. If the unit is pen capable, the screen takes the most use and abuse, and is subject to damage. Back in my Apple Newton days, I used a protective screen add-on that saved that PDA from dust and scratches, and saved my wallet the $300.00 replacement cost from inadvertent damage. I was thrilled when I found a company that had taken on the task of developing protective accessories for the current crop of H/PCs and Palm-size PCs.

The company is Concept Kitchen (www.conceptkitchen.com/), and the package I looked at was their "PDA Survival Kit." This package contains three very useful products (WriteRight™ , Karma Cloth™ , and Brain Wash™) that will keep your PDA's screen clean and healthy. The products are also marketed separately. A "Fingertip" stylus is also included as a bonus. This product will eventually be replaced with a "PenCap" Stylus.



WriteRight Screen Enhancements

Many PC Companion users end up tapping the touchscreen with their fingers. It's convenient, but it also leaves fingerprints, dirt, and grease on the screen. If left on long enough, these can actually damage the screen. WriteRight is a thin, rectangular piece of clear plastic that lies on the screen to protect it. The kit comes with a dozen WriteRights, intended to last about 1 month each. Clean the touchscreen thoroughly before applying the WriteRight. (The manufacturer strongly recommends a thorough screen cleaning with the Karma Cloths and Brain Wash, included with the PDA Survival Kit before installing the WriteRight). The WriteRight is removed without difficulty, leaving no residue on the screen.

I'm a physician and enter a lot of handwritten notes on my PC Companion. I have inadvertently pulled a pen out of my pocket and used it as a "stylus." WriteRight helps protect my touchscreen against the kind of damage this would cause. The plastic screen saver gives a nice tactile feel to your fingernail when it acts a your stylus. Concept Kitchen makes WriteRight for H/PCs, Palm-size PCs and PalmPilots.

Karma Cloths

These reusable screen "dusters" buff out minor screen scratches, as well as removing dust and debris. They work incredibly well. Enough said!

Brain Wash

In addition to the Karma Cloths, the kit includes a dozen wet/dry disposable "towelettes." These soft, lint free cloths clean your screen better than anything I have tried. They do not streak or stain the display. After using this package, my display looked better than it did when it was new from the box.

The PDA Survival Kit is priced at $69.99 and is available directly from Concept Kitchen, Phone: 415-252-3333, Web: www.conceptkitchen.com. ■

Ed is Medical Editor of *Handheld PC Magazine*, a practicing obstetrician-gynecologist in Houston, Texas, and chief technology correspondent for OBGYN.NET (www.obgyn.net), a Web site for obstetricians, gynecologists, and related industry persons.

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PocketC

Programming language and applications for Windows CE

> *"Even a novice programmer is able to create simple applications without knowing anything about Windows CE programming."*

BY KEVIN CAO

Whether you are a programmer or simply aspire to be one, PocketC may quickly become your favorite handheld application. PocketC is a simplified version of the C programming language that lets you develop programs for, and on PC Companions. It's versatile, easy-to-learn, and provides seasoned professionals or novice programmers with the ability to quickly write applications directly on their Windows CE device.

Simple to install and use

PocketC installs from your desktop PC to your PC Companion via cable and Windows CE Services. Two major components are installed: PCeditor – the development tool used to write and compile code; PCshell – the run-time module used to execute applications created by PocketC. Install puts the PCshell component in the /Windows directory, and PCeditor in the /PocketC directory on your PC Companion. The entire installation takes about 385 kb of storage space and requires about 200 kb of memory to run.

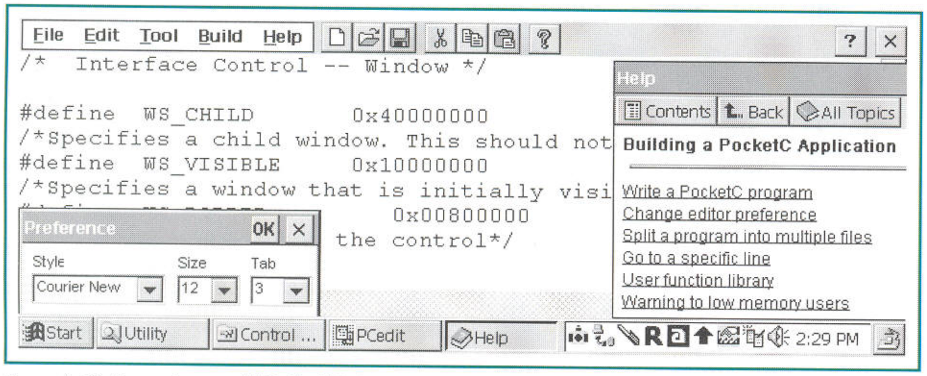
To launch PCeditor on your H/PC, open H/PC Explorer, go to the /PocketC directory and click on PCeditor.exe (see Screen 1).

Palm-size PCs don't come with an Explorer application, so you need to install a third-party file Explorer on your Palm-size PC to launch PCeditor. (You can download the freeware program PalmExplorer from www.cemonster.com.)

Programming in PocketC

PocketC is very similar to standard C in syntax, but has a different feature set. Most notably, there are no pointers, no structs, and no preprocessor. PocketC adds features such as a string data type and loose typing (the compiler transparently converts between all data types). The PocketC compiler produces a "pseudo-executable" file which run on all Windows CE platforms, no matter what processor is used. Most importantly, even a novice programmer is able to create simple applications without knowing anything about Windows programming.

PocketC contains several groups of built-in functions, including math, registry, file I/O, graphics, serial I/O, and window functions. There are commands which allow



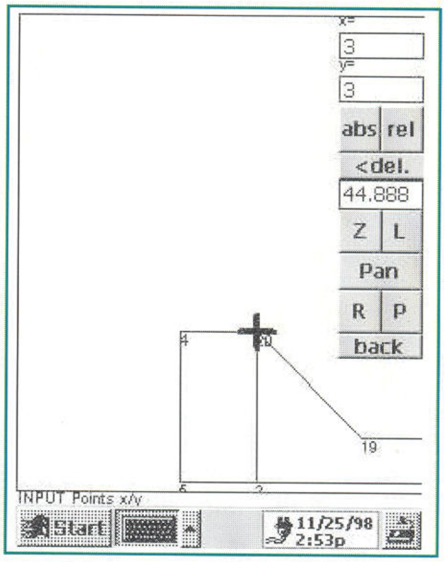
```
/*  Interface Control -- Window */

#define  WS_CHILD        0x40000000
/*Specifies a child window. This should not
#define  WS_VISIBLE      0x10000000
/*Specifies a window that is initially visi
                            0x00800000
                       the control*/
```

Style: Courier New
Size: 12
Tab: 3

Building a PocketC Application

Write a PocketC program
Change editor preference
Split a program into multiple files
Go to a specific line
User function library
Warning to low memory users

Screen 1: PCeditor running on an H/PC. The Help feature gives you hints on using PCeditor to write PocketC code.



Screen 2: Shown here on a Palm-size PC, Sketch CE is a miniature CAD program.

Kevin Cao (cao@orbworks.com) graduated in May 1998, from Case Western Reserve University. He currently works as a professional developer writing Windows CE development tools.

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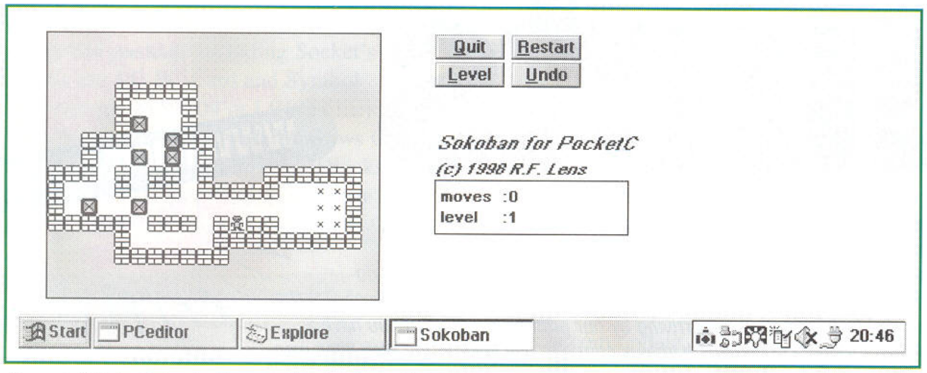
PocketC Applications for your PC Companion

A number of applications have been written in PocketC. To use them you must first download and install the PocketC Runtime application on your H/PC or Palm-size PC. PocketC Runtime is freeware and can be downloaded from the OrbWorks Web site at: www.orbworks.com/download.html. Once PocketC Runtime is installed on your PC Companion, you select and launch any PocketC application from Explorer. Palm-size PCs do not come with Explorer and users will have install a third-party Explorer program on the Palm-size PC before they can use PocketC applications.

OrbWorks maintains the WinCE OS PocketC Resources page, located at www.orbworks.com/ceres.html. The page has links to PocketC Tips and Frequently Asked Questions; PocketC Development Tools; Reusable Source Code; and a number of downloadable PocketC applications (some with source code), including the following:

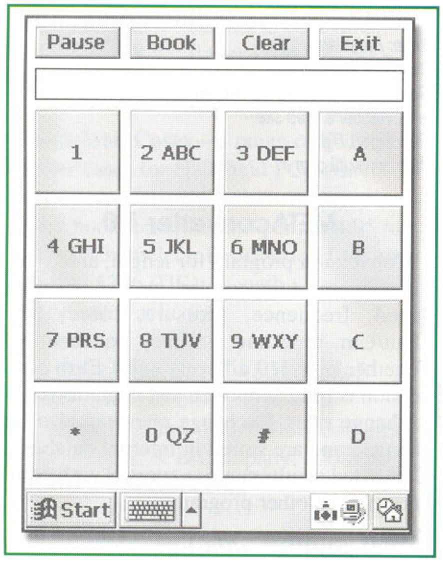
- **Pocketris –** Tetris Clone with great drawing routines, help available in-game, configurable game pieces (author: Martijn van Rheenen).
- **Centipede –** Classic Arcade game from Atari (Beta release, author: Benoit Görtz).
- **Catacomb –** Blast evil monsters away with your laser guns! Pick up ammunition and medical kits on your way (author: Steven Wellink)
- **Joyride2.0 –** 3D driving game, you are driving toward JoyCity. The goal is to avoid the traffic madness and get there as fast as possible (author: Steven Wellink)
- **PipeGuy –** A puzzle game with a board (8x8 squares) and a bunch of pipe segments. The objective is to form a closed system; that means connect all the segments in such a way so that there are no open ends anywhere (author: Ronald F. Lens).
- **Sokoban –** Classic game of moving boxes that comes with a level designer (see Screen 3; author: Ronald F. Lens).
- **Roulette1.0 –** A less dangerous version of Russian Roulette (author: Carlos Baquero).
- **FlashCard1.0 –** A flashcard-program for Palm-size PCs only at the moment (author: Tom Redenbach).
- **Reversi –** The classic board game (author: Dave Derick).
- **scih –** A sun compass (author: Tom Clark).
- **PalmPhone –** A text-based phone book which can store up to 14 entries, and can be edited with your favorite editor (see Screen 4; author: Tom Ferguson).
- **Swireco Freeware –** Includes games, CEpager, serialIO logger, and more useful tools (author: Favre Pascal).
- **MyCar –** An efficient, fast and very informative car cost monitoring utility for the Palm-sized PCs only (author: Ad Bosch).
- **Sketch CE –** A mini-CAD technical sketch tool (see Screen 2; authors: Ralf Schieferdecker & Hans Boetius).
- **Morse –** A simple morse applet (author: Ralf Schieferdecker).
- **xteditor –** PocketC Text writer ver 1.0 (author: Cory).
- **loancalc –** A simple loan calculator – screen size has to be 640x240 (author: John Bonin).
- **pcad –** A mini-CAD program for PocketC, beta version (author: Erwin Rohde).
- **LabTimer –** A simple laboratory timer for Palm-size PCs (author: Robert Wolfgang Rumpf).
- **polydice –** A dice-rolling utility for Windows CE devices (author: Robert Wolfgang Rumpf).
- **BalanceBook –** Lets you keep track of your money transactions on your Palm-size PC (author: Gerben RoosenBoom).


Quit
Restart
Level
Undo
Start
PCeditor
Explore
Sokoban
20:46

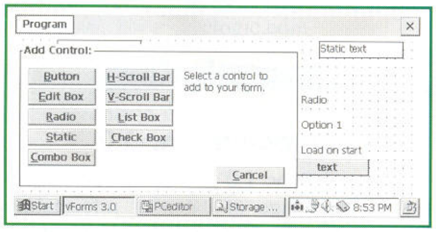
Sokoban for PocketC
(c) 1998 R.F. Lens

moves :0
level :1

Screen 3: Sokoban is the classic game of moving boxes. This PocketC game comes with a level designer.


Pause
Book
Clear
Exit
1
2 ABC
3 DEF
A
4 GHI
5 JKL
6 MNO
B
7 PRS
8 TUV
9 WXY
C
*
0 QZ
#
D
Start

Screen 4: PalmPhone is a text-based phone book and dialer which can store up to 14 entries.


Program
Add Control:
Button
Edit Box
Radio
Static
Combo Box
H-Scroll Bar
V-Scroll Bar
List Box
Check Box
Cancel
Static text
Radio
Option 1
Load on start
text
Start
vForms 3.0
PCeditor
Storage ...
8:53 PM

Select a control to add to your form.

Screen 5: Visual Form Buddy lets you create graphical user interfaces with a few simple clicks.

you to create very sophisticated, windows-like graphical user interface (GUI) elements; commands to show the Open File Dialog and Save File Dialogs; and much more.

PocketC hides complexity from users. For example, you can create a pop-up menu filled with menu items with one function called menupop(), and the user's feedback is returned by that function. Functions in PocketC are designed to allow programmers to write simpler code and less code.

One of the best examples of a PocketC application is Sketch CE by Interfox, a miniature CAD program (see Screen 2). Sketch CE allows a technician to pick up geometric data in the field and convert it to an accurate technical sketch. It is also compatible with DXF files. Other sample applications are shown in Screens 3 & 4.

Development Tools

Since PocketC's introduction in 1998 August, developers have generated numerous development tools to ease the programming effort. KrugSoft has created the Visual Form Buddy application that can be used to design graphical user interfaces with a few simple clicks on screen (see Screen 5).

Another developer wrote DelC, an integrated development environment for PocketC applications, allowing rapid application development on the desktop. It has its own form designer, event code editor, user function editor, property inspector, syntax checker, and more.

PocketC was created by Jeremy Dewey for the PalmPilot. As it became popular, Kevin Cao (the author of this article) rewrote it for Windows CE, first for the Handheld PC, and later for the Palm-size PC. Though PocketC has developed into a powerful and versatile tool, there are still a few enhancements on the way. Most notably, PocketC power users can look forward to dynamic memory allocation, pointers, and an improved preprocessor.

For further information, or to download a copy of PocketC, see www.orbworks.com ■

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The PC Companion Products listed here include hardware, software, publications, events, and developer services for Windows CE. Information about the H/PCs and Palm-size PCs themselves can be found in our "At A Glance" section on page 41. Prices listed are suggested retail price. Many software products are available for online downloading. Listings do not represent an endorsement by the editors. We have tried to include a comprehensive collection of products and services available by mid-March 1999. However, there will be gaps due to information not arriving by our printing deadline. If you have a product to announce in our next issue, please send an e-mail message to editor@thaddeus.com. For live links to the Web sites mentioned in this section, visit our Web site at www.hpcmag.com.

Hardware

Cases

Protekta Case

Protekta Case is a weatherproof and heated case for Hewlett-Packard palmtop computers. It protects your handheld in sub-zero temperatures. The cases are molded from ABS plastic with scratch resistant screen and fitted with foam inserts and elasticized hand strap. Data can be downloaded from a standard 9 pin 'D' socket RS 232 COMM 1 serial port with facilities to switch from DTE(Data Terminal Equipments/DCE(Data Communication Equipment). Available with or without heated pads, carrying cases and surveyor's tripod mount. Cases available for Hewlett-Packard 100, 200, 300 and 600 series and Ericsson MC.

Price: $150
Use with: H/PC
Contact: Protekta Cases
Phone: 44 01732 863555
Fax: 44 1732 863660
Email: protekta@globalnet.co.uk

GPS

RouteFinder PNA

A handheld portable vehicle navigation system to generate turn-by-turn driving directions with automatic voice guidance. RouteFinder is a stand-alone handheld device using the Windows CE operating system.

Price: $na
Contact: DATUS
Phone: 888-462-8627
Web: www.datusinc.com

TeleType GPS v0299

TeleType GPS v0299 (they've changed the version numbering scheme) now allows JPEG files to be imported with the use of the TeleType GPS Geocoder (#3059). The new version also supports a brand new vehicle tracking option (#1402) combining a GPS receiver and a form of cellular communications called CDPD into one rugged unit.

Price: Please call
Use with: H/PC
Contact: TeleType
Phone: 617-542-6220
Fax: 617-542-6289
Web: www.teletype.com/gps

Peripherals

Accurite Travel 120 Floppy Drive

Connects to Handheld PC or notebook computer with a PC Card interface. Use it to backup important data, transfer files between handheld and notebook or desktop computers, or download large Internet files. Weighing less than 10 ounces, the compact, portable Travel 120 comes with and AC adapter to power the unit. The Travel 120 is compatible with H/PCs as well as Windows 3.x, 95/98, and DOS computers with a PC Card slot. It accepts 20 Mb as well as standard 720K and 1.44 Mb diskettes. See Review page 25.

Price: $269
Contact: Accurite Technologies, Inc.
Phone: 510-668-4900; Fax: 510-668-4905
Email: sales@accurite.com
Web: www.accurite.com

Software

Calculator

Euro Calculator Windows 1.0

A simple calculator that also has the additional facility of showing the currency conversions between the common European currency EURO and the other eleven participating countries.

Price: Freeware
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: ITIL
Web: www.itil.com

METAconverter 1.0

Conversion program for length, area, volume, mass, temperature, power, energy, speed, frequence, pressure, force, dB-Uout/Uin, time and currency conversions. Together over 110 different units. Euro conversion is fully supported and contains fixed exchange rates. Exchange rates can also be changed and are stored in internal database. Converted results can be exported with copy and paste to other programs.

Freeware
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site.
Developer: META TOOLS GmbH
Web: www.metatools.de/ (German language site)

Communications

CorporateSync 1.0

CorporateSync 1.0 is a connection agent for the exchange of calendar information between CS&T's CorporateTime and OpenTime enterprise calendar software and the Microsoft Windows CE computing platform. It also works with Netscape Calendar software.

Price: $69 per user or $500 for 10 users.
Use with: H/PC
Contact: Lexacom
Web: www.lexacom.com

Database

CAWS/E (Computer-Aided Work Sampling with Microsoft Excel)

CAWS/E programs include MS Pocket Excel custom spreadsheet template for data collection on Handheld PC. The spreadsheet is transferred to desktop PC for CAWS/E programs analysis, data management, and final reporting. Many sort and select options are available to the engineer including reporting by hour, day, department, individual subject, etc. Reports can be formatted or provided in raw data format allowing use of Excel's Pivot Table feature and subsequent Chart Wizard for trend and comparison graphing of work sampling results. 42-minute video included.

Price: $95 to $1950 (Limited Version and multiple unit discounts are available)
Use with H/PC
Contact: C-FOUR (Clemson Consulting Clearinghouse Corporation)
Phone: 800-558-2514 or 864-624-1234
Fax: 864-646-2450
Web: www.c-four.com

CITSWCE (Computer-Integrated Time Study for Windows CE)

Lets you collect time data on a Handheld PC (H/PC). Time study data, including study information, timing (4 time units), and pace ratings are transferred to desktop PC. CITS programs provide data analysis, management, and instant final reporting. 32-minute video included.

Price: $95 to $1950 (Limited Version and multiple unit discounts are available)
Use with: H/PC
Contact: C-FOUR (Clemson Consulting Clearinghouse Corporation)
Phone: 800-558-2514 or 864-624-1234
Fax: 864-646-2450
Web: www.c-four.com

PocketBase 1.0

Create customized databases on your Windows CE Handheld PCs in minutes.

Price: $29.00
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: Pocket Technologies
Phone: 650-320-8449
E-mail: info@pocket-ce.com
Web: www.pocket-ce.com

Developer

advanCE System Design Package (SDP)

advanCE SDPs provide production-ready system design hardware, software and development information, enabling OEMs to rapidly create their own Windows CE-based products. Fully compatible with the Microsoft Windows CE Platform Builder development system, the design packages include complete documentation to develop new products with minimal effort or prior knowledge of Windows CE. The advanCE SDPs are expandable to add new features and to build new form-factor boards.

Price: N/A
Use with: H/PC
Contact: Eclipse International, Inc.
Phone: 650-691-6400
Email: advance@eclipseint.com
Web: www.eclipseint.com

CD ROM File System

A CD-ROM File System for Windows CE that supports the ATAPI interface devices. This will allow developers of Windows CE devices to incorporate CD-ROMs in a variety of applications that use rotating media. For example, manufacturers of kiosks, ATMs, GPS mapping systems, and multimedia equipment will want to have a CD ROM drive as part of their systems to facilitate loading software upgrades, recovering the system from disk failures, or accessing large amounts of data.

Price: $call
Use with: H/PC
Contact: Annasoft Systems
Phone: 619-674-6155 or 800-690-3870
Fax: 619-673-1432
E-mail: annasoft@annasoft.com
Web: www.annasoft.com

CE Launcher

Boot loader that lets you launch Windows CE on any Pentium or 486 embedded PC from any type of disk media (floppy, CD-ROM, DiskOnChip, hard drive, etc.). Eliminates the need for DOS. Works with Microsoft's Windows CE 2.1 Embedded Toolkit for Visual C++ (ETK) and Platform Builder 2.11. Lets embedded developers create Windows CE applications on an inexpensive and readily available PC platform.

Price: $call
Use with: H/PC
Contact: Annasoft Systems
Phone: 619-674-6155 or 800-690-3870
Fax: 619-673-1432
E-mail: annasoft@annasoft.com
Web: www.annasoft.com

CE Xpress Kits

- CE Xpress Binary Kit — Inexpensive Windows CE evaluation and development environment in binary form for specific target platforms.
- CE Xpress Adaptation Kit — Powerful, fully customizable, development solution, complete with source code for custom hardware adaptations.

Both kits include production ready and fully tested on-chip and on-board device drivers, platform-verified OALs, loaders, and more to provide a complete build environment when used in conjunction with a reference design such as WinSystems' SBC platform and the Microsoft Platform Builder. Development kits support WinSystems' LBC-Plus Single Board Computer (SBC) platform. CE Xpress Kits are built upon BSQUARE's Platform Layer (BPL), which implements many of the standard interfaces of the portable Windows Driver Model (WDM). BSQUARE's CE Xpress Kits are available in two versions.

Price: N/A
Contact: BSQUARE Corporation
Phone: 888-820-4500 or 425-519-5900
Email: sales@bsquare.com
Web: www.bsquare.com

CHIPS 69000 Video Driver Kit

A Windows CE Video Driver Kit for Chips and Technologies' 69000 Video Controller. The 69000 Video Driver Kit contains the driver for the chip as well as software tools for adapting the driver to support different resolutions (including 1024x768), cursor shapes and color depths. It provides the flexibility needed to adapt the 69000 to a variety of different CE platforms and applications. It works with any boot loader on both RISC and CISC architectures. It is also compatible with Versions 2.0, 2.1 of Microsoft's ETK and Platfrom Builder 2.11.

Price: $call
Use with: H/PC
Contact: Annasoft Systems
Phone: 619-674-6155 or 800-690-3870
Fax: 619-673-1432
E-mail: annasoft@annasoft.com
Web: www.annasoft.com

Jump Start Platform Library Kit v 2.11 (PLK)

A complete, ready-to-run board support package for embedded PCs. Provides fundamental PC device driver support for floppy, hard drive (up to 4), CD ROM, CHIPS 655 video, Cirrus Logic video, Epson video, serial mouse, multiple serial ports, and keyboard. Included with the PLK are Annasoft's CE Launcher STK and SMOS' Loader for Cardio-486D4, which enables Windows CE to boot on embedded PCs without the aid of DOS.

Price: $call
Use with: H/PC
Contact: Annasoft Systems
Phone: 619-674-6155 or 800-690-3870
Fax: 619-673-1432
E-mail: annasoft@annasoft.com
Web: www.annasoft.com

River Run AppsBuilder (VB)

River Run AppsBuider (VB) is a Software

Development Kit (SDK) that enables you to build Client (end user) applications, to remotely access Corporate databases. This toolkit provides you with the development interface of Visual Basic and MS/VC++. Using River Run AppsBuilder (VB), you can develop two kinds of applications: Online: develop applications that access Corporate data in real-time; Offline: develop applications with local database support and remote database synchronization off line.

Price: $795 (includes 5 runtime licenses), plus S/H
Additional runtime licenses: $ 95 per license. Discounts available for volume users
Available with H/PC, Ps/PC and H/PC Pro
Contact: River Run Software Group
Phone: 203-861-0090; Fax: 203-861-0096
Email: info@riverrun.com
Web: www.riverrun.com/cc

SDG Flash Disk Drive

Software device driver that configures a portion of the resident linear flash memory to act like a a disk drive for the Window's CE operating system. The SDG Flash Disk Drive is provided in the form of a platform independent Dynamic Link Library or "DLL" and a specified interface, which can be used to implement a platform dependent solution. The SDG solution lets OEMs utilize low-cost flash memory for data storage providing a better, faster and more cost-effective solution than many available alternatives. The product includes sample source code for developing platform dependent software.

Price: $499
Contact: System Design Group
Phone: 619-536-2920; Fax: 619- 536-2921
Web: www.systemdesign.com

UnwiredContact

A fully interactive, wireless data interface between popular contact-management programs and portable devices, such as Web-enabled smart phones, pagers, palmtops and Handheld PCs.

Price: $4,995 server license and $199 per user license.
Use with: H/PC
Contact: Practical Sales Tools
Web: www.practical-sales.com

Finance

BalanceBook 2.4

Keeps track of your personal or business account expenditures, calculates the account balance and allows you to enter future repeating entries — with a specified interval in months — which are updated automatically on the appropriate date. You can also export files to a *.TXT format, these files can consequently be imported into Microsoft Excel for printing or further processing.

Price: $11.95
Download at Tucows CE Monster: www.cemonster.com or Developer Web site: http://home.wxs.nl/~gjroos/

Conversions In Hand™

Lets you make your unit conversions easily and effectively. CIH includes over 200 different conversion types, including currencies. CIH also includes a built-in calculator so you can actually make use of your conversions as you need to. Because currency conversions go out of date quickly, you can update CIH's currency conversion settings from the Internet, by easily downloading an updated conversion file from this Web site. You can customize the conversion tab layout to place your frequently used conversion types into the most easily accessible location.

Price: $20
Use with: H/PC and Ps/PC
Download at Tucows CE Monster: www.cemonster.com and developer Web site
Developer contact: Burr Oak Software
E-mail: info@burroak.on.ca
Web: www.burroak.on.ca/

SwEuro 1.3

A simple European currency conversion utility.

Freeware
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Web: www.sw4you.de

Games/Entertainment

IntelliGOLF 3.7

Golf scoring system software for Window CE Palm-size PCs. IntelliGOLF tracks scores, putts, drive distances, fairways hit, sand saves and more. Chart, analyze and evaluate results on all of your rounds with included desktop and conduit software. Use your official USGA Index or let IntelliGolf calculate an approximate handicap for your round. IntelliGolf even helps calculate your drive distance and yardage to the pin. Internet-based golf courses downloads are also included.

Price: $39.95
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: IntelliGolf
E-mail: info@intelligolf.com
www.intelligolf.com

Octopus Game and Watch Simulator 1.0

Popeye Game and Watch Simulator 1.0

Windows CE versions of popular 1980s, Nintendo games called Game & Watch.

Freeware
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com

Information Manager

Outliner 1.0 Beta 2

Hierarchical organizer that lets you keep lists of all things to do or get. Features check lists and easy drag and drop arrangement.

Freeware beta
Use with: H/PC and Ps/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: eConsult
Web: www.econsult.de

TapeMinder 1.0

A convenient and easy way to organize your videotape library. TapeMinder lets you view a graphical display of all your tapes and their contents, or a list of all your programs. Easily locate any program in your collection, or see what's on any tape. TapeMinder will even remind you of programs you want to record, and tell you which tape has enough empty space for it. TapeMinder runs on handheld, palm-size and desktop PCs, so you can maintain your tape and movie information wherever it's most convenient.

Price: $24.95 1 platform, $10.00 for any additional
Use with: HPC, Ps/PC, desktop PC
Contact: Ilium Software
Email: info@iliumsoft.com
Call: 888 632-5388 or (734) 973-9388
Web: www.iliumsoft.com

Ink & Drawing

ActiveTABLET 1.0

A drawing tablet that transforms a Windows CE device connected to a desktop PC into an input tablet. This lets you use the PC Companion's touchscreen to input taps, sketches and other data directly to the desktop machine. ActiveTABLET employs ActiveX and Automation technology in conjunction with VBScript to allow full integration with any Automation compliant COM based application, most notable of which are the Microsoft Office 97 suite of applications.

Price: $39.95
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site.
Developer: Softscribe

E-mail: tablet@softscribe.com
Web: www.softscribe.com/activetablet.htm

Specialized

Starbuck 1.62

A customizable book reader that reads HTML documents. Open Starbuck and access its menu by pressing your Palm-size PC's Action button. From the menu you can create customizable bookmarks, select an indent option, and access different sections of the e-book text. Users can choose from five different font sizes and use any font style already installed on the palmtop device. Starbuck displays accented texts, such as those in French.

Shareware registration fee: $10.00
Use with: Ps/PC
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site
Developer: Thumbs Up!
Web: www.thumbsupsoft.com

Sports

StatsNOW 2.01

A basketball statistics program for collecting and analyzing statistics while sitting on the bench. StatsNOW reports all the standard stats., plus shot charts and game trend graphs. After the game, you can open the data in Excel using the included Add-in and combine games to get season stats or even shot charts.

Shareware registration fee: $60.00
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site
Web: www.pbfonline.org/StatsNow/StatsNOWCE.htm

Synchronization

All in Sync! Personal

Lets Windows CE single users remotely synchronize Pocket Calendar, Tasks and Contacts with their Lotus Notes calendar and scheduling data. Also available is total email connectivity to your mailing system. Sychronize remotely using either wireline, cellular or wireless networks.

Price: $49, plus shipping and handling
Use with: H/PC and Ps/PC
Contact: River Run Software Group
Phone: 203-861-0090; Fax: 203-861-0096
Email: info@riverrun.com
Web: www.riverrun.com/ais/persona

Utility

AccessPanel

AccessPanel allows Palm-size and H/PC owners to easily insert pre-defined text anywhere with the touch of a stylus.

Commercial Demo
Use with: H/PC and Ps/PC
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site
Developer: DeveloperOne
Web: www.developerone.com

AddressGrabber Deluxe 2.0

Lets you transfer addresses from one place to another in your PC Companion. This is a program installed on your desktop PC and communicating with your H/PC or Palm-size PC.

Price: $49.95
Use with: desktop PC
Download demo at Tucows CE Monster:
www.cemonster.com or developer's Web site
Developer: ProdEx Technologies
Phone: 408-872-3100
Fax: 408-872-3109
E-mail: info@prodexusa.com
Web: www.prodexusa.com

Clip Force 1.0hp

A tray utility which manages clipboard entries. Clip Force makes text entry on an H/PC easier by facilitating multiple cut-copy-paste operations to and from the clipboard. It creates a list, from the text items that the user dumps to the clipboard and allows them to be pasted to any document later. Clip Force has a configurable list which allows the user to decide how many clipboard entries should be saved. Being a tray utility it can be accessed easily and yet is unobtrusive.

Freeware
Use with: H/PCs
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site
Developer: Ruksun Software Technologies
Phone: 91-212-678286 or 91-212-678288
Fax: 91-212-627264
E-mail: info@ruksun.com
Web: www.ruksun.com/wince

Fitaly Keyboard 1.0

An ergonomic replacement for the standard on-screen QWERTY "soft keyboard" of the Palm-size PC. The layout of the keyboard is optimized for pen entry. Fitaly also allows Palm-size PC owners to easily insert pre-defined text anywhere with the touch of a stylus.

Price: $25
Use with Ps/PC
Download demo at Tucows CE Monster:
www.cemonster.com or developer Web site
Developer contact: Textware Solutions
Phone: 800 355-5251 or 781-272-3200
Fax: 781-272-1432
E-mail: support@twsolutions.com
Web: www.fitaly.com

FlashBack-Database 1.0

Lets you backup & restore your database files to main storage memory or flash cards with ease! No need to do a full backup, let FlashBack help you safely and securely archive your contacts, appointments and more! Transfer your archives to the desktop or a flash card for safe keeping.

Price: $17.95
Use with: H/PC and Ps/PC
Developer Contact: Developer One
Phone: 414-423-7276; Fax: 414-423-7065
E-mail: sales@developerone.com
Web: www.developerone.com

HtmlEdit 1.0

Lets you create, edit, and update your Web pages on your H/PC. You can also carry html files with and access them (and Help files) on your H/PC. HtmlEdit lets you view the source or html while you edit. More features enabled in the registered version.

Shareware registration fee: $15
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com
or developer Web site
Developer contact: Bn Ksoft
E-mail: info@bnksoft.com
Web: www.bnksoft.com

IrDesk 1.0

Transfer multiple files or folders quickly and accurately between two H/PCs which have Infrared ports.

Price: $20.00
Use with: H/PC
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site
Developer: Jisan Information System
Web: http://pda21.jisan.co.kr

Microsoft Power Toys 2.0 for Palm-size PCs

Microsoft PowerToys for Windows CE includes a version of paint, cascading menu (like the start menu), and taskbar sound controls. Also includes backgrounds and sound schemes. The new Ps/PC version contains the "Hyperlinked Active Desktop," a business card exchanger, a DTMF dialer, a mute program, a paint program (which supports color on color devices), sound schemes, and wallpaper.

Freeware
Download at Tucows CE Monster: www.cemonster.com
or developer's Web site

Developer: Microsoft
Web: www.microsoft.com/windowsce/hpc/soft ware/powerr.htm

Palm Explorer 2.5

A storage system explorer for your Palm-size PC that lets you browse the contents of your Palm-size PC and execute and delete files. It also allows you to choose whether or not to view RAM or ROM files while you are exploring.

Price: $13.00
Use with: Ps/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: Grundle Software
Email: info@grundlesoftware.com
Web: www.grundlesoftware.com

Power Supply Properties 2.4

Control panel application that lets you completely turn off the device and backlight even if on battery. That's useful for emptying the batteries to avoid the memory effect of the "accu pack."

Price: $9.00
Use with: H/PC and Ps/PC
Download demo at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: SBM (Germany)
Phone: +49 (371) 363079
Fax: +49 (371) 363081
E-mail: info@sbm.nu
Web: www.sbm.nu

StarTap

An interface replacement for your Ps/PC that uses the desktop metaphor to give you an iconic view and control system, as well as an Explorer to view and manage files. You can now run launch programs by tapping on an icon for the program or a document used by that program, as well as easily explore the contents of your Ps/PC. In addition StarTap has an application manager feature.

Shareware registration fee: $10
Use with: Ps/PC
Contact: Thumbs Up! Software
Web: www.thumbsupsoft.com/

Startler 1.22

A full-featured travel alarm that includes twin alarms and a snooze button. When the palmtop is placed in the cradle, the AC power for backlighting helps the palmtop serve as a large-digit bedside clock. Startler also includes a sport stopwatch with 1/100-second precision, and lap times.

Shareware registration fee: $10
Use with: Ps/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: Thumbs Up!
Web: www.thumbsupsoft.com

TaskPro

TaskPro lets you switch among and/or close active tasks on your Palm-size PC. Features include: One tap of the icon brings up the TaskPro menu; looks and operates just like the Start menu, including application icons; navigate and select using the rocker/action switch or pen tap; easily close/kill any application; view free-resource statistics in an instant; (Storage memory, Free space on flash card, Application memory).

Price: $14.95
Use with: H/PC and Ps/PC
Developer Contact: Developer One
Phone: 414-423-7276; Fax: 414-423-7065
E-mail: sales@developerone.com
Web: www.developerone.com/TaskPro/home.htm

ToolPack 1.02

The package includes: EzAppBar Application shortcut bar; EzBackup Backup/-Restore your data, EzCalc Full function calculator including conversion routines, EzCleaner A simple way to clean your object store, EzEnergySize Watch the battery charge at any time, EzExplorer New-fashioned Windows Explorer, TaskManager Windows NT type Task Manager on speed.

Price: $49.95
Use with H/PC
Demo available online at developer's Web site
Contact: Ezos Ltd.
Phone: 604-944-8558
Web: www.ezos.com

VxPage 1.1.0b

Lets you send text messages to alphanumeric pagers or other message receiving devices.

Price: $34.95
Use with: H/PC & Ps/PC
Download at Tucows CE Monster: www.cemonster.com or developer's Web site
Developer: Cambridge Computer Corporation
Sales: 800/462-4481 or 203/288-6004
Fax: 203/288-0009
Web: www.cam.com/vxpage.html

Services

Developer

Annasoft Windows CE Design and System Integration Services

Annasoft Systems provides a comprehensive suite of software and hardware design and integration services for all Windows CE RISC and CISC platforms. Service range from hardware design, OAL adaptation, driver development, porting, application development to hardware design, system integration, packaging, and pilot manufacturing.

Price: $call
Use with: H/PC
Contact: Annasoft Systems
Phone: 619-674-6155 or 800-690-3870
Fax: 619-673-1432
E-mail: annasoft@annasoft.com
Web: www.annasoft.com

MAXIMO Wireless Work Management

Provides mobile versions of MAXIMO applications for thin client, low bandwidth communications on small form factor handheld devices. MAXIMO applications help Create Work Orders, View Work orders, Change Work, Order status, View Operations, View Work Assignments, Reassign assignments, Issue Materials, Return Materials, and Report time.

Price: varies
Use with: H/PC & Ps/PC
Contact: PSDI
Phone: 800-244-3346 or 781- 280-2000
Web: www.maximo.com

PhatWare Corporation specializes in software for the Handheld PC.
By listening carefully to customer feedback, we have created products that fulfill our users' important needs and desires.
Visit PhatWare's web site and try our products for 15 days absolutely FREE!

http://www.phatware.com

- Organize your notes with HPC Notes.
- Check your documents with HPC Spell.
- Manage databases with HPC dbExplorer.
- Connect to networks with HPC NetProfile.

PhatWare Corporation

HPC Notes
HPC Spell
HPC dbExplorer
HPC NetProfile
HPC Trace

650 299-0110
650 299-1369 Fax

PC COMPANIONS

At A Glance

Handheld PCs / H/PC Pros

Casio

CONTACT your local Casio dealer or Casio, Inc.; Phone: 201-361-5400; Fax: 201-361-3819; Casio accessories information 800-836-8580; Web: www.casio-usa.com/hpc/

Casio CASSIOPEIA A-20 - $599.95

One of the smaller, less expensive grayscale display H/PCs running Windows CE 2.0. The A-20 is easy to carry with you and you'll get better battery life (15-20 hours) than a larger, or color-screen H/PC. Includes a variety of bonus software, including Casio Project Management Software and Find File Tool.

Compaq

CONTACT your local Compaq dealer or Compact Direct Plus; Phone (USA): 800-888-5858; Web: www.compaq.com

Compaq C-Series 2010 c (color screen) - $799

One of the smallest 1/2 VGA color-screen H/PCs running Windows CE 2.0. The 2010c is easy to slip in a pocket or purse, and the color screen is easy to see. Battery life is short (around 3 hours), so you'll want to get a spare battery pack if you go on long trips. Built-in modem lets you send/receive e-mail and browse the web (slowly). Small, calculator-type keys are firm to the touch — you won't press them accidentally, but you won't type too fast.

Compaq C-Series 810 (gray-scale screen) - $499

A Windows CE 2.0 H/PC similar to the C-Series 2010 c described above, but with a monochrome screen, making the battery life much better (up to 20 hours on two AA alkaline batteries). A little smaller than the 2010 c and easier to slip in your pocket.

Ericsson

Contact: Ericsson Mobile Communications; Web:www.ericsson.com

Ericsson MC16 - $749

The MC16 is the only H/PC that comes with a built-in infrared modem, letting you communicate with Ericsson cellular phones for e-mail and (slow) Web browsing. The MC16 is a small and pocketable H/PC with decent battery life (8 hrs.) because of its monochrome screen. Hewlett-Packard manufactures this Windows CE 2.0 H/PC for Ericsson, and HP is known for quality and reliability.

Hewlett-Packard

Contact your local HP dealer or Hewlett-Packard Company; Phone (USA): 800-443-1254; Web: www.hp.com/jornada

HP Jornada 820 H/PC Pro - $999

H/PC Professional Edition running Windows CE 2.1. Comes with a near-full-size keyboard and large, easy-to-read color screen. The Jornada is the first Windows CE device not to include a touchscreen. Instead, it uses a mouse touchpad below the keyboard. The Jornada is the size of a small notebook computer and you'll end up carrying it in your briefcase. Fast internal modem and full-size screen makes Web browsing and e-mail fast and easy. VGA monitor port lets you use an external monitor with the Jornada for presentations and regular use. The Jornada has remarkably good battery life (15 hrs with optional high-capacity battery) for a color screen unit. The Jornada ships with an excellent suite of additional software.

HP Jornada 680 H/PC

A small, pocketable color-screen H/PC Pro running Windows CE 2.1. Has the best keyboard of any of the smaller H/PC Pros, and comes with an excellent suite of add-on software. Comes with a standard 7-hour rechargeable battery, with an optional 21-hour extended battery pack.

HP 660LX Palmtop PC - $849

HP 620LX Palmtop PC - $699

Two of the most popular Windows CE 2.0 H/PCs. The 620LX and 660LX are slightly larger than the smallest H/PCs and still slip into an outside coat pocket or a purse. Their keyboard is smaller than those of the newer H/PC Pros, but still relatively easy to touch type on. Their 640x240 color screen is easy to see and their battery life is reasonable (6-8 hrs). The 660LX ships with 32 MB of internal memory and a fast, 56 Kbps fax/modem card. The H/PCs are well manufactured and ship with an excellent suite of additional software. Both can be upgraded to Windows CE 2.1 and the H/PC Pro applications.

HP 360LX Palmtop PC - $549

One of the smaller, more pocketable Windows CE 2.0 H/PCs. The 360LX comes with a monochrome screen that is reasonably easy to see, good battery life (8 hrs) and a nice suite of add-on software.

Hitachi

CONTACT your local Hitachi dealer or Hitachi Home Electronics; Phone (USA): 800-HITACHI; Web: www.hitachi-ce.com

Hitachi HPW-600ET – $1,199

An H/PC Pro without a keyboard. The tablet-style Windows CE device sports a 7.5" diagonal full-VGA 640x480 backlit touchscreen displaying 65K of colors. The touchscreen is used for opening applications and entering data. Hitachi will market this device to value-added resellers, who in turn will target vertical markets and specific applications solutions.

Protect Your Handheld Investment

The RhinoPak 1000 is now available to Palm-size PC owners. Features include a weather resistant Cordura outer, interior padding, plastic insert screen protector, elastic securing straps, and belt loop. Inside/outside mesh pockets are ideal for pens, business/credit cards, cash, etc. **Black....$26. 95**

The acclaimed **RhinoPak 2000** "sport-ute" case for is ideal for all H/PC's with dimensions of 7.25"x4.25"x2". Features include a weather-resistant Cordura outer, padded interior, battery pouches, and pen/stylus holder. Utility pockets inside and out accommodate checkbook/passport, disks, credit/business cards, and car keys. Ideal for the user who needs his/her handheld in the office one day, on the road the next, and in the backcountry on another. **Black....$49.95**

Also available: RhinoPak 3000 for larger H/PC's, including the HP 660LX, and Executive Styluses for Palm-size PCs

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URL: http://www.rhinoskin.com

Hitachi HPW-200EC H/PC - $799

A fast Windows CE 2.0 H/PC with a near-full-size, touchtypeable keyboard and an easy-to-see 640x240 color screen. Internal modem facilitates e-mail and (slow) Web browsing. The VGA-out port lets mobile users make Pocket PowerPoint presentations. Good (10 hr.) battery life. An excellent choice for mobile users who need to do a lot of text and data entry while on the road.

Hitachi HPW-20E8M H/PC - $599

The monochrome screen version of the Hitachi H/PC described above has excellent battery life (20 hrs) and comes with a slower internal modem. For users who want a touchtypeable H/PC, need the better battery life, and don't mind a monochrome screen.

Itronix

Contact: Itronixm Phone: 800-441-1309 or 509-624-6600. Web: www.itronix.com

T5200 – $varies

The T5200 is a rugged Windows CE Handheld PC designed for specialized, demanding field applications. It comes with a monochrome touchscreen, high-capacity battery, a built-in modem, and options for built-in wireless communications.

LG Electronics

CONTACT: local LGE dealer or LG Electronics Customer Information Center; Phone (USA): 800-243-0000; Web: www.lgphenom.com

LG Phenom Express - $679

LG's H/PC Pro comes with a near-full-size touchtypeable keyboard. LG stayed with a 1/2-VGA (640x240) screen, making the Phenom Express one of the more compact H/PC Pros (but still too big to carry in your pocket). It has decent battery life (12 hr) and a fast, built-in 56 kbps modem for communications and Web browsing. It also comes with a standard parallel printer port, making it easier to connect to printers wherever you find yourself.

LG Phenom Ultra - $599

Manufactured for LG by Hitachi and based on the HPW-200EC Handheld PC described earlier. A fast Windows CE 2.0 H/PC with a near- full-size, touchtypeable keyboard and an easy-to-see 640x240 color screen.

LG Phenom -$399

Smaller, monochrome screen Windows CE 2.0 H/PC. Easier to carry in your pocket and better battery life (20 hrs) than the larger color- screen models. The tradeoff is a smaller keyboard with a screen that is not quite as easy to read.

NEC

Contact: local NEC dealer or NEC; Phone: (USA) 888-8-NEC-NOW. Web: www.nec-computers.com

NEC MobilePro 800 Enterprise PC Companion (H/PC Pro) - $999

An H/PC Pro with a big color touchscreen and near-full-size keyboard. The MobilePro 800 is the size of a small notebook computer and you'll carry it in your briefcase or shoulder bag. The built-in 56 kbps modem should be fast enough for serious browsing and e-mail. The USB port will let you add fast peripherals and the VGA-out cable lets you connect to an external monitor for Pocket PowerPoint presentations. The lithium-ion rechargeable battery pack is rated at 8+ hrs (consider getting an extra battery pack for long, international flights).

NEC MobilePro 770 H/PC Pro - $800

H/PC Pro without a USB port. Otherwise it's similar to the MobilePro 800 described previously. The smaller screen makes it a little more compact

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and easier to carry, but you'll still be keeping this in a briefcase. The fast 56 kbps modem will speed up browsing and e-mail, but the 1/2-VGA screen means you'll be spending a little more time scrolling around on most Web pages.

NEC MobilePro 750C- $799

Another fast Windows CE 2.0 H/PC with a near-full-size, touchtypeable keyboard and an easy-to-see 1/2-VGA 640x240 color (or monochrome) screen. The internal modem facilitates e-mail and reasonably-fast Web browsing, but the 1/2-VGA screen means that you'll be scrolling around to see all of a Web page. The VGA-out port lets mobile users make Pocket PowerPoint presentations .

Novatel Wireless

CONTACT Novatel Wireless; Phone (USA): 888-888-9231; Web: www.novatelwireless.com; Sales contact: Pinacore: 1-800-PINACOR or Mobile Planet: 800-MPLANET or online at www.mplanet.com.

Novatel Wireless CONTACT - $999.95

The only H/PC with a built-in wireless modem - if you need this capability, take a look at the CONTACT. A well-engineered unit based on the HP 360LX hardware. The wireless modem and antenna add to the bulk of this unit, making it necessary to carry in an outside coat pocket or purse. Slow wired modem is good for e-mail and limited browsing. A VGA adapter can be used with the serial port to connect to an external monitor for Pocket PowerPoint presentations.

NTS Computer Systems

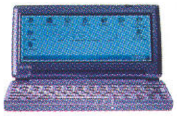
Contact: NTS Computer Systems; Phone: 604-465-1040; Fax: 604-465- 3323; Web: nts.dreamwriter.com

Dreamwriter I.T. - $varies

Dreamwriter I.T. is a specialty H/PC Pro designed as a computer for students and sold to educational organizations in quantity. It is not marketed as an end-user product, although the NTS Web site lists prices for single units.

Philips

Contact: Philips Mobile Computing Group; Phone (USA): 888-FOR-VELO; 408-558-2200; Fax: 408-558-2222; Web: www.velo1.com. U.S. retail outlets include: CDW, CompUSA Direct; Mobile Planet, PC Connect, and PC Zone.



Philips Velo 500 (16 MB RAM) - $699

Philips Velo 500 (24 MB RAM) - $799

Philips has discontinued these H/PCs but they may still be available. One of the smaller Windows CE 2.0 H/PCs that slips easily into a coat pocket or purse. Has a fast processor and good battery life (15 hrs). Low-power modem good for e-mail and (slow) Web browsing. 1/2-VGA monochrome screen means that you'll be scrolling around to see all of a Web page. Memory expansion slots use Miniature Card standard. Additional "V-module" snaps onto bottom of Velo to add PC Card slot.

Samsung

Contact: Samsung Electronics America, PC Sale Marketing; Fax: 408-544-4963, E- mail: JUSTINJ@sea.samsung.com

Samsung iZZi Pro H/PC Pro - $850 (est.)

A mini-notebook-sized H/PC Pro with a clear, full-size screen and near-full-size keyboard. The iZZi Pro incorporates a touchpad instead of a touchscreen. The fast modem and full-sized color screen should make Web browsing and e-mail fast and easy. Comes with USB port and an optional docking cradle that adds external keyboard and mouse capability. Reasonably good battery life (10+ hrs) on its rechargeable battery pack, and you can use regular AA Alkalines in a pinch. The iZZi Pro is being actively marketed to corporate accounts only in the U.S.

Sharp

Contact: your local Sharp dealer or Sharp Electronics Corporation; Phone (USA): 800-BE-SHARP; Web: www.sharp-usa.com

Mobilon TriPad PV-6000 H/PC Pro - $999

The TriPad's "tri-mode hinge" lets you use it in three different positions: as a notebook computer with its near-full-size keyboard, as a pen- only tablet for note taking and information access, and as a "presentation easel" to display Pocket Powerpoint shows. The TriPad has a relatively good (up to 12 hrs per charge) battery life and built-in modem for e-mail and reasonably-fast Web browsing.

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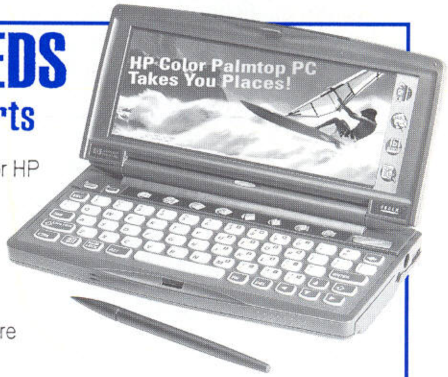

New HP660LX Color Palmtop PC The leader with 56Kbps modem and 32MB RAM!

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Mobilon Pro PV 5000 H/PC Pro - $899

H/PC Pro with a near-full-size touch-typeable keyboard, full-VGA color touchscreen, and fast CPU. Built-in low-power modem good for e-mail and reasonably-fast Web browsing. Reasonable battery life (8 hrs per charge), but take a spare battery pack with you on long international flights. Sharp's Digital Camera Card works with this H/PC Pro (but not the TriPad).

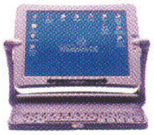
Mobilon HC-4600 - $699.00 (256 color display, 16MB RAM, upgradeable to 32MB)

Mobilon HC-4500 - $649.00 (256 color display, 16MB RAM)

One of the few smaller Windows CE 2.0 H/PCs with a color display. Color touchscreen is easy to read in anything but direct sunlight (true of most color displays). Slips easily into your pocket and provides 4-6 hours on a fully-charged NiMH battery pack. You may want to get a spare battery pack, especially if you use the optional Digital Camera Card. Built-in modem good for e-mail and limited Web browsing.

Vadem

Contact: Vadem; Phone: 408-467-2100; E-mail:info@vadem.com; Web: www. vadem. com/home.html.



Clio H/PC Pro - $999

The hardware is identical to the Sharp Tripad (which Vadem manufacturers for Sharp). The Clio has the same "tri-mode hinge" lets you use it in three different positions. Clio has a relatively good (12-16 hrs per charge) battery life and built-in modem for e-mail and reasonably-fast Web browsing. The Clio differs from the TriPad in its selection of bundled software, which includes the ViewFinder personal information viewer and finder.

WPI Husky

Contact: WPI Husky Technology, Web: www.wpihusky.com

Husky FeX21 — $na

The FeX21 is a Windows CE 2.0 Handheld PC ruggedized and sealed for harsh environments. It comes with an enhanced color LCD display, high-capacity battery, and wireless phone/LAN/Wan access. Husky will market this to companies and individuals requiring rugged mobility in an H/PC.

Palm-size PCs

Bcom

Contact: Bcom Electronics Inc.; Web: www.bcom.com.tw/

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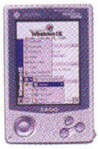
Mars Palm-size PC (4MB) - $379 (8MB) - $499

Comes with a built-in modem that's good for sending and receiving e-mail. The power and navigation buttons are on the top half of the left and right sides of the unit, making them easy to access, especially for a right-handed person. Unit comes with a warranty, but must be shipped to Taiwan for repairs.

Casio

CONTACT your local Casio dealer or Casio; Phone (USA): 888-204-7765 or 973- 361-5400; Web: www.casio.com/hpc/e-10.cfm



Cassiopeia E-100 – $499; E-100 Plus – $599

Windows CE 2.1 color-screen "multi-media" Palm-size PCs with a high-resolution color display and MPEG and MP3 capabilities. Desktop PC software included to convert MPEG, AVI and Quicktime videos into movies that can be played on the E-100. High-quality MP3 recordings can be listened to in stereo via external headphones.

Casio E-15 – $399

A small, monochrome-screen Windows CE 2.1 Palm-size PC. The E-15 is smaller and lighter than the E-10/11 series.

Cassiopeia E-10 Palm-size PC - $299.99

Cassiopeia E-11 Palm-size PC - $399.95

Both Cassiopeia Palm-size PCs have a well-placed "rocker button" that lets you navigate up and down through items and select an option by pressing rocker button. The screen is clear and easy to see and the backlighting sufficient in the dark. The E-10 & E-11 do not ship with a rechargeable battery pack or AC adapter, and you can go through AAA batteries quickly. If you buy an E-10, you may want to purchase the optional rechargeable battery pack and AC adapter. The Cassiopeia comes with a nice set of bundled software.

Compaq

CONTACT your local Compaq dealer or Compact Direct Plus; Phone (USA): 800-888-5858; Web: www.compaq.com/products/handhelds/

Compaq Aero 2100 color-screen Palm-size PC

A color-screen Palm-size PC powered by a 70 MHz MIPS processor and 8 MB RAM (16 and 24 MB expansion modules will be available). Aero will ship with Audible Content Player, Compaq Asset Management, dictionary tools, an expense tracker and scientific/financial calculator. A Japanese-language version of the Aero will be available.

Everex

CONTACT Everex Systems; Phone (USA): 888-PALMPC-4; Web: http://freestyle.everex.com/

Everex Freestyle color-screen Palm-size PCs — $na

Color-screen Palm-size PCs with a large, front-lit 240 x 320 color display and enhanced rocker-arm navigation button to make one-handed use easier.

Freestyle Associate 4MB RAM - $269

Freestyle Manager 8MB - $329; 16MB - $399

Freestyle Executive 8MB - $449; 16MB - $499

This is the smallest and thinnest of the Palm-size PCs. The Manager and Executive come with a lightweight mobile data cradle that carries extra batteries to extend the Freestyle's battery life. The Executive's data cradle has a built-in fax/modem. Another nice feature in all models is the silent vibrating alarm that lets you know when an appointment comes due without disturbing others. The power and navigation buttons are recessed. You won't accidentally press them, but finding them without looking takes a little practice. The display is a little hard to see in poor lighting conditions. All versions of the Freestyle ship with rechargeable batteries and AC adapter.

Philips Nino color-screen Palm-size – $na

Color-screen Palm-size PC using the Windows CE 2.1 operating system.

Philips Nino 301 Palm-size PC - $399.99

Philips Nino 302 Palm-size PC - $499.99

One of the nicer-looking Palm-sized PCs. The Nino comes with a built-in modem, making it larger than most, but still pocketable. The Nino 302 comes with a NiMH rechargeable battery pack, an option for the 301. Either Nino can use standard AA batteries in a pinch.

Trogon

Contact: Trogon Computer Corporation; Phone: 562-802-8702; Fax: 562-802-2879; Web: palmpower.trogoncomputer.com/

Paume C4000 – $na

A 256 color screen Palm-size PC powered by a Lithium-ion rechargeable battery. The Paume comes with a CompactFlash backup and restore utility and ART handwriting recognition software.

Palm Power C2000 (4MB RAM) - $215

Palm Power C2001 (8MB) - $315

Palm Power C2002 (8MB) - $415

We haven't tested this unit yet, but the hardware appears to be identical to the Everex Freestyle series. See Freestyle summary comments.

Uniden

CONTACT Uniden; Phone (USA): 888-6-UNIDEN; Web: www.uniden.com

UniPRO PC100 Palm-size PC - $379

We have not tested the UniPRO yet and have no feedback.

Auto PC

Clarion

CONTACT your Clarion dealer or Clarion Sales Corporation; Phone: 310-327-1999; Fax: 310-327-1999; Web: www.auto pc.com or www.clarionmultimedia.com

Clarion Auto PC - $1,299 (not yet shipping)

Voice command capability allows hands-free use for driver. Fits into the standard slot used for auto-stereos and tape players. Comes with AM/FM stereo tuner and CD/CD-ROM player. IrDA port to transfer data between Auto PC and other PC Companions.

Hewlett-Packard

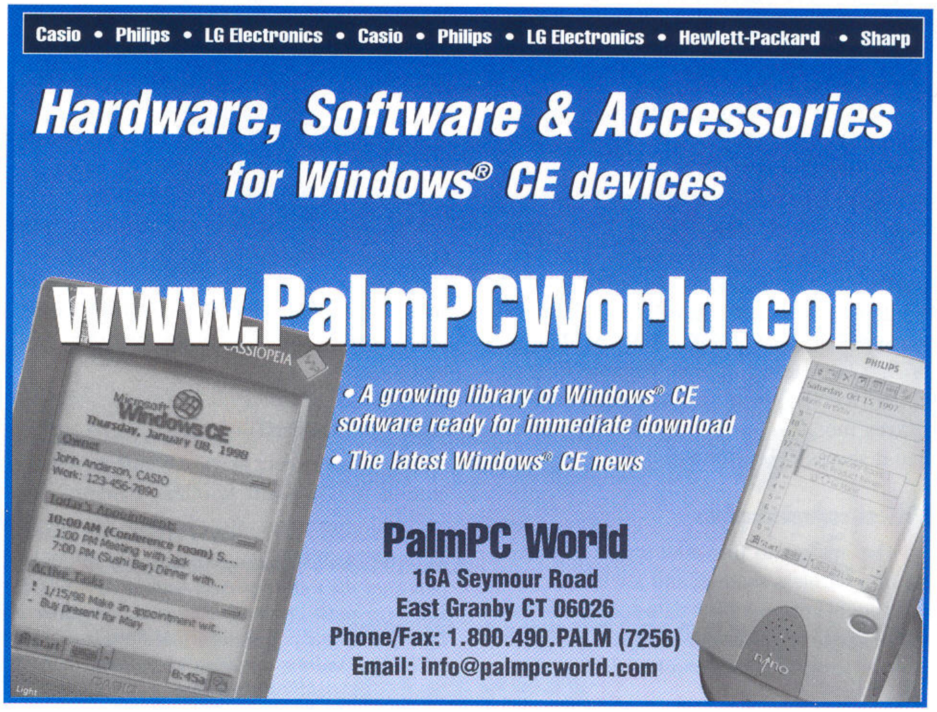
Contact your local HP dealer or Hewlett-Packard Company; Phone (USA): 800-443-1254; Web: www.hp.com/handheld

HP Jornada 420 Palm-size PC – $519

The Jornada 420 is a color-screen Palm-size PC powered by a 100 MHz SH7709a CPU. It will use the Windows CE 2.11 operating system and have the standard Palm-size PC built-in applications. It will also support FLEX CompactFlash paging and modem cards (optional) allowing the users to send and download short message service (SMS) messages with integrated infrared and Trio PhoneManager software. The 420 available to end-users, but HP will target corporate users and vertical niches.

Philips

CONTACT Philips Mobile Computing Group; Phone (USA): 888-367-8356 or 408- 558-2200; Fax: 408-558-2222; Web: www.mobile.philips.com



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Wireless future of Windows CE

This month's issue of *Handheld PC Magazine* focuses on peripherals and accessories. In my column this month, I am going to look at some of the peripherals for mobile communications that you can expect to see come to market during 1999.

Wired modems not enough

For several years now, there has been an interest in enabling Windows CE devices with communications capabilities. As soon as the first H/PCs hit the market, PC Card vendors delivered modems so that we could use these devices to dial-up and access our e-mail and/or the Internet. Several H/PC vendors went as far as to build in modems because they understood that Windows CE devices were ideal for portable information access.

When Palm-size PC devices hit the market, several companies, including Socket and Pretec announced wired modems that plug into the CompactFlash slot to enable these junior members of the Windows CE family as well. And when the new H/PC Professional units hit the market last fall, a built-in dial-up modem was included as standard fare.

Many Windows CE users have found that the ability to plug into a phone line and use these mobile devices to connect to information resources truly adds value by giving them access to information that they previously were not able to access. However, finding a phone jack, configuring the Windows CE device, and then dialing up an Internet Service Provider (ISP) or dialing directly back to a corporate Remote Access Server (RAS) is not always easy. Sometimes it takes more time to set up the connection than it seems to be worth.

Wireless communications

The answer to this dilemma is to make use of a wireless modem and a wireless service capable of providing data access when a phone line is not available. Novatel has gone so far as to build both a wireless data modem and a wired modem into its H/PC, so that users can choose the method that makes the most sense in given circumstances.

The rest of the industry has been slow to embrace wireless connectivity for Windows CE devices for a number of reasons, including the fact that using such a device through a wireless network and gaining access back to your own corporate data has been fraught with problems and frustrations. The good news is that companies such as the recently formed joint venture between Qualcomm and Microsoft known as WirelessKnowledge, as well as back-end service providers such as General Magic and GoAmerica and others have stepped up to address this issue.

The rude awakening

It was not until Palm Computing introduced its Palm VII complete with a built-in wireless modem on the BellSouth Wireless Data network that Windows CE vendors really started to sit up and take notice! Even though the Palm VII is not yet available, and even though I believe that it will not be a complete success because of some major limitations, the Palm VII has energized the Windows CE vendors as well as Microsoft. I expect that we are going to see a lot of scrambling by these vendors in order to "catch up" to the Palm VII offerings.

As a result, wireless modems in a variety of shapes and sizes, middleware to make them work with Windows CE, and back-end services to handle these devices will become commonplace—if not during this year, certainly in 2000.

What can we expect?

First, we expect to see a whole new generation of PC Card wireless modems for most of the data-capable networks. Today, such PC Card modems are available for one-way paging services, the BellSouth Wireless Data Network, and the various CDPD networks. Recent announcements and "direction statements" lead us to believe that the new generation of PC Card wireless modems will become available for all of the major data-capable networks including new

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Data rates from a low of 8 Kbps to a high of 19.2 Kbps will be attainable either via packet-data networks such as BSWD, American Mobile, and CDPD. Circuit-switched dial-up access will be available at 9.6 Kbps over the GSM networks, and 14.4 Kbps over the CDMA networks. (TDMA networks do not support data at this time.)

So, for H/PC and H/PC Pro users, there is certainly good news on the wireless modem front in 1999. But what about Palm-size PC users who also want access back to their corporate resources or even access to the Internet? Since the Palm VII has laid down the gauntlet for Palm-size devices to run, some wireless data modem vendors are speeding up their development efforts, and some Palm-size PC vendors are taking a hard look at designing their next-generation Palm-size to include a built-in wireless data modem.

Hewlett-Packard has announced a one-way pager option developed by Motorola that slips into the CompactFlash slot, and Pretec has stated that it is hard at work on several CompactFlash wireless modems. I suspect that a number of Palm-size PC vendors are considering built-in solutions as well, but we will have to wait to see how quickly they can bring their products to market and what types of access services they bundle with them.

Bluetooth

Then there are those Windows CE vendors who are going to wait and not worry about wide-area wireless modems. They believe that late this year or early next year, the Bluetooth technology being developed by a consortium of computer and communications companies will become a reality.

Bluetooth is a low-power radio system that will, it is believed, be built into all mobile computers including all of the Windows CE products. With Bluetooth-enabled Windows CE devices, users will be able to wirelessly connect to a wireless phone or other wireless device and from there gain access to wide-area data-capable networks. The Bluetooth module is small, it consumes very little current, and it has been designed to be inexpensive.

In addition to being able to provide a "wireless wire" to other wireless communications devices, Bluetooth is expected to be able to provide wireless connectivity to and from Windows CE devices and desktop computers, printers, and all manner of peripheral devices.

It is possible to imagine many of the Windows CE peripherals discussed in this issue of *Handheld PC Magazine* as becoming Bluetooth-enabled. All of us would then be able to "cut the cord" between our Windows CE devices and the rest of the world. This year and early into 2000 will certainly be interesting for Windows CE and the peripheral markets. ■

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Tom
Gibson

Accessories make the outfit

There is an old saying in the fashion world that "accessories can make the outfit." And as you've seen in this issue of *Handheld PC Magazine*, the same is true in the world of PC Companions.

Now that we've described all these wonderful accessories to make your PC Companion safer, more useful and fun, what do you do next? You could run down the street to your neighborhood computer store, but chances are you won't find many of the accessories mentioned in stock. A quicker and less expensive solution is to go online and find the accessories on the World Wide Web.

Most of accessories mentioned in this issue have contact information that includes a Web site where you can find out more about the product and even purchase the product online.

But I like to have other options available to me when I shop, so we will try to look at the sites where you can buy different products without having to bounce around.

Shopping for accessories online

www.mplanet.com Mobile Planet has to have the largest selection of PC Companion accessories available online. They carry accessories from the PC Companion manufacturers as well as third-party accessories. They have carrying cases, PC and CF Cards, modems, cables, and more.

www.mobtech.co.uk/ Mobile Technology (UK) Ltd is a United Kingdom-based site offering connectivity cables, CompactFlash cards, cases and styluses with many new products being promised.

www.palmpcworld.com PalmPC World has accessories including infrared drives, cases and accessories from Philips and Hewlett-Packard.

www.pacbus.com/cgi-bin/sgdynamo.exe?HTNAME=PDAlinks.html Club PDA has cases, modems, screen protectors and many other accessories for you.

inyourpalm.com InYourPalm.com has cases, styluses, compact flash and other accessories for your PC Companion.

www.wenk.com/ This German language site has lots of accessories for your PC Companion.

www.tuff-as-nuts.com/ Tuff as Nuts makes cases for your PC Companion. Select your unit from the list and they will tell you which case is for you.

www.palm-size-pc.com/ Has cases, styluses and CompactFlash cards to offer.

www.pda-concepts.com/ PDA Concepts has lots of cases and also has a Windows CE to Mac connectivity cable and also a cable for using the Newton Keyboard on your PC Companion.

www.wince.ru/ A Russian language site offering PC Cards, PC Modems, chargers and many other things for the Russian-language PC Companion user.

www.marware.com/html/wince.html Cases for your H/PC and Palm-size PC.

www.shoresystems.net/ Shore Systems offers compact and standard flash cards and cases. The site is also optimized for Netscape, Internet Explorer 4.X and Pocket Internet Explorer and has options for viewing in English or French.

www.timasci.com/ Tima Scientific offers PC and CompactFlash cards, cases and screen protectors.

www.pdamart.com/ PDA Mart has lots of accessories for your PC Companion, including machine specific and general accessories such as cases, styluses, PC and CompactFlash cards and many others.

I've only listed sites with a variety of accessories for sale and haven't included the manufacturers sites, as they are listed elsewhere all through this issue. If I have missed your online store, send me an e-mail about your site so that I can visit it and report on it in the future and add it to our list of links.

Until next issue, I'll see you online! ■

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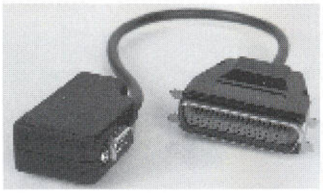

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Quick Tips
& PC Companion Tricks

by Jim Christian,
Contributing Editor Handheld PC Magazine
and CompuServe Windows CE Forum Sysop.

Got a lot of programs? Get them off the desktop and into the Start menu.

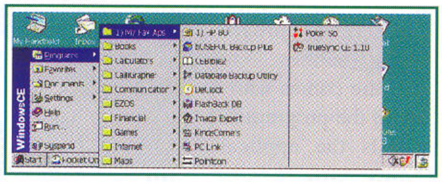
I must download a new Windows CE program every day, to try out, test, or buy. The funny thing is, I seem to keep most of them, and consequently, my H/PC is loaded with software applications. How do I find them? Well, I don't have a bunch of icons on my desktop screen. Instead, I've nested the programs in my Start menu. Here's how.

1. From your Start menu, tap Programs and then Windows Explorer.
2. Next, tap to open the Windows folder.
3. Finally, from the File menu tap New Folder and give it a name. Any folder you put in the Windows folder will appear in the Start menu. You can also create folders within those folders.
4. Finally, install, move, or link your programs in the new folders.

The final results, on my H/PC, are shown in Screen 1. Ah, to be organized again.

LapLink owners get LapLink CE free

Traveling Software is giving their new LapLink for Windows CE away for free to registered users (as of March 30, 1999). LapLink CE is a remote control client that lets H/PC users access data stored on a desktop or notebook PC running LapLink Professional. You can connect to your office computer from home or on the road. See http://www.laplink.com/products/llpro/multiple.asp for more.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TrueSync CE 1.10

Screen 1: Folders placed in your H/PC's Windows folder appear in the Start menu. You can use this to organize programs on your H/PC and keep your desktop screen free of clutter.

Game players protect PC Companion touchscreens

I'm hooked on King's Corners, a card game from Ilium Software (www.iliumsoft.com). To date, I played it over 2,000 times on my first H/PC, a Sharp Mobilon 4500. So far, I've played it 1,200 times on my current HP 660LX.The Mobilon developed a checkerboard, worn area where I tapped the cards for the game. The HP has shown no signs of wear yet, but why take chances? If you're going to play games, or use any application that require a lot of tapping and screen use (like handwriting recognition programs), use a screen protector on your PC Companion's touchscreen. I use WriteRight from www.conceptkitchen.com/ (see review, page 32).

Bad Appointment Synchronization? Here's a fix.

Are you getting an error message indi-

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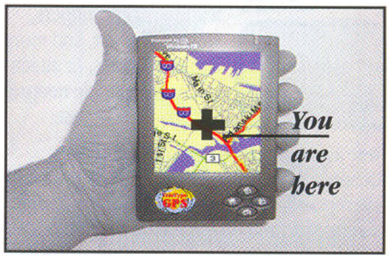
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cating a bad Appointment (Calendar) synchronization? There is a bug in Windows CE that sometimes causes this to happen. Microsoft has posted a solution to it on its support Web site. Go to: http://support.microsoft.com/support/kb/articles/q186/0/00.asp. Make that site one of your "Favorites" as, unfortunately, there seems to be a lot of action there.

Speeding up a slow H/PC

My HP 660LX is sometimes as slow as a snail. HP tech support told me that there is a "heap memory storage problem" (whatever that is) that sometimes causes this, and that there is no fix planned. Well, here are some hints on how to speed up an HP, or any Handheld PC.

a. Run your PC Companion lean and mean – if you don't use a program, get rid of it! Go to the Control Panel, and use the Remove Application utility to completely delete it. Make sure you have the original somewhere, in case you want to put it back on.

b. Minimize the number of icons (shortcuts) you have on your H/PC's desktop screen. The H/PC has to draw each icon and this take up CPU horsepower. The more icons you have, the longer it take to access the desktop screen.

c. If your H/PC has quick-launch keys for Pocket Word, Excel, PowerPoint, etc., you don't really need their icons on the desktop. Remove them. Also, see the first tip on putting programs in the Start menu.

d. Take out a modem card if you not using it. If you leave it in the PC Card or CompactFlash slot, it takes longer to boot up and may reduce your battery life. Also, if you only use your PC or CompactFlash storage card for backups, don't leave it in the card slot. Removing the card speed things up a little on boot up, and you'll have your backup if you loose your PC Companion. If you keep your PC or CF storage card in the slot, run as many programs from the internal memory as possible – they run faster! Finally, don't keep a number of old backups on your card. If you must have them, copy them over to your desktop PC and delete them from the storage card. Backups to the card will go a lot faster.

e. Do a soft reset of your computer – this clears things out of RAM that may be slowing down your CPU. Make sure you save data files first, and close down applications. Most PC Companion's have a soft reset button on the back of the unit. Some can be reset using a CTRL key sequence. A soft reset clears RAM memory, and any running programs or unsaved documents. It does not erase documents or programs stored in internal memory.

f. Avoid programs without built-in install routines. Normally, Windows CE software comes with an install routine. You tap on the program file and it automatically installs the application on to your PC Companion. However, some shareware, freeware, or pre-release "beta" programs do not have a built-in install. Instead, they ask you to copy a file over to your PC Companion. The problem with these kinds of programs is that you sometimes cannot completely un-install them. They leave bits and pieces of the program on your PC Companion, which can clog up its Windows CE Registry. This can slow down your system tremendously. Avoid programs without an install routine, or get a registry editor program. These programs let you look at and edit the Windows CE Registry. (Search the "PC Companion Products" section at www.hpcmag.com, for "registry editors.") You can find pieces of that program that you thought you un-installed completely. But you have to be careful editing your registry. Back up your PC Companion completely before attempting this.

g. For an HP 620/660LX only, run the diagnostic mode. BE DOUBLY CAREFUL WITH THIS ONE! The HP units have a built-in diagnostic mode that their tech support uses to fix your unit when you send it in for repairs. When I run these diagnostics and exit the program it usually runs faster. I assume it somehow helps with the "heap memory problem." Again, back up your 620/660LX completely before trying this one. Then, press the following keys simultaneously: Ctrl-On-Backspace and the "S" key.

h. Always have your battery charged and run your unit out of the docking cradle with the AC adapter attached whenever possible.

i. Upgrade to a newer, faster H/PC Pro. The newer H/PCs have faster processors. (The new HP 680 has a 133 MHz CPU, and I've heard that it no longer has the "heap memory problem.)

j. Delete Help files after you've learned how to use the program. Who uses them anyway? You probably have 50+ in your Windows directory that average 1K each. Delete them and you save 50K in memory and the 5 seconds it takes to open them.

k. Toss those old Contacts, Tasks, Calendar appointments, or anything else you don't use any more.

Pocket Quicken on the new HP 680

Hewlett-Packard is bundling Pocket Quicken with its new Jornada 680 Handheld PC Pro. So far, its an exclusive deal and I highly doubt whether we'll see a separate application marketed for other PC Companion users anytime soon. It looks like it was developed by On the Go Software (www.onthegosoftware.com), but their Web site doesn't show any information yet (as off March 29). ■

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Please note: The Staff of Handheld PC Magazine *cannot provide technical support.*

Hal
Goldstein

Competition will make Windows CE a winner

Over a year ago Microsoft and a number of manufacturers introduced the Palm-size PC, in part to capitalize on and challenge the success of Palm Computing's PalmPilot. The Pilot has dominated the handheld category for a couple of years, with over 2 million users. Palm Computing's philosophy is to do a few fundamental things well, and not try to be all things to all people. So far, they seem to have done their homework well, identifying the features necessary to make their device successful.

Even so, 3Com will be challenged to maintain its leadership position against Windows CE Palm-size PCs. The number one PC vendor, Compaq, as well as HP, Casio, Philips, Everex and five other manufacturers have introduced Windows CE Palm-size PCs. That means many of the world's greatest companies are trying to out-innovate each other, and Palm Computing, to create a superior palm-size machine. 3Com (Palm Computing's parent company) is now talking about licensing the Palm operating system, but I think it is already too late. The competitive marketplace continues to produce better Palm-size PCs, and eventually manufacturers and Microsoft will "get it right" for many different segments of the marketplace. This will leave PalmPilot as a niche device.

Ironically, if Palm-size PCs succeed, Microsoft and its partners will owe much of their success to Palm Computing's pioneering efforts. In the end, Microsoft and its OEM partners may turn what began as the strength of PalmPilot machines (few features done well) into a weakness in the eyes of consumers. Feature-rich Windows CE devices will provide more solutions to more people. Even now, universally appealing Windows CE features such as color displays and voice recording have put the PalmPilot into a catch-up position. And the race will get faster and more competitive.

A PC on every desk and a PC Companion in every pocket

Microsoft has been successful in getting manufacturers to develop handheld and palm-size PCs because it is successful in sharing its vision of "data at your fingertips" and because hardware manufacturers recognize the tremendous growth potential of handheld devices. We existing "handheld visionaries" already enjoy having our e-mail and other data always available, and appreciate having a simple input device always on hand. As phone, scanning, voice and handwriting recognition, wireless and other technologies evolve and merge, more and more capabilities will be available to us, and to an ever-growing number of PC Companion users.

The challenge for Microsoft and the hardware manufacturers is to find the right formula and quickly make these devices a no-brainer purchase for mainstream consumers.

Handheld PC Magazine subscriber Steven Berkwits has some thoughts on the right formula. He e-mailed some interesting comments based on my last column.

"I was making a phone call from a hotel lobby and an insurance agent, there for some productivity seminar, was so fascinated by the way I was using my HP 620LX, I had to give him a brief demonstration on the spot before he would let me make another phone call. I showed him how I use the main application and Pocket On-Schedule. He excitedly told me I had showed him more about improving his productivity in five minutes than the seminar leader had in two hours!"

These devices are incredibly useful. I know it, you know it, Steve knows it, and now Steve's acquaintance knows it. But what will it take for the general consumer to know it?

Steve goes on to say, "I think Microsoft is on the right track with CE: it can be used to drive all kind of devices (phones, TV's, etc.), and I can see using my H/PC as kind of a "ringmaster" — system manager, diagnostic and repair aid — tying it all together. I'd like to see CE evolve in that direction; and if it does I can't see why a lot of people who currently own full-blown PCs would really need to. I like the idea of using thin clients, and CE is a great operating system for supporting all kinds of thin clients. I'd love it if my H/PC was the fattest client I owned!"

Unhappy subscribers

Thaddeus Computing is a company of about 15 dedicated folks publishing two magazines: *Handheld PC Magazine* and *The HP Palmtop Paper*. As companies go, we are a relatively small fish swimming around in waters occupied by giants of the computer and publishing world. We've been publishing niche magazines/newsletters about mobile computing since 1985. When Windows CE came along, we happened to be in the right place at the right time.

The truth is that it hasn't always been easy swimming in these waters. Consumers compare us to the bigger magazines, and they have a right to expect similar quality. But they also expect subscription prices similar to computer magazines with 200 times our advertising revenue. At the same time, advertising agencies have a hard time relating to us because our circulation, though highly focused, is relatively small. We felt we had to take the plunge to raise circulation. Hence, we lowered our rate twice in the last six months from a high of $34.95 to $19.95.

Unfortunately, the changing subscription rates have confused and angered some of our subscribers. If you feel you have been treated unfairly, please e-mail us at orders@thaddeus.com and we will adjust your subscription appropriately.

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Hal Goldstein is Publisher and Executive Editor of *Handheld PC Magazine* and president of Thaddeus Computing. He has published, edited, and written for five magazines on portable computing since founding Thaddeus Computing in 1985. You can e-mail Hal at hal@thaddeus.com.

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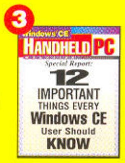
③ 
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